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STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

IN THE MATTER OF: WILLOW ROCK ENERGY STORAGE CENTER	Docket No. 21-AFC-02

COMMENTS OF CALIFORNIA UNIONS FOR RELIABLE ENERGY ON THE PRELIMINARY STAFF ASSESSMENT

June 16, 2025

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ATTACHMENTS

Attach. A: Letter to Richard M. Franco, Adams Broadwell Joseph & Cardozo from James J. Clark, Clark & Associates re: Comments On Willow Rock Energy Storage Center Project, Kern County, CA. California Energy Commission Number: CEC-700-2025-003-PSA Docket Number 21-AFC-02 (June 9, 2025)

Attach. B: Letter to Richard M. Franco, Adams Broadwell Joseph & Cardozo from Deborah Jue re: Willow Rock Energy Storage Center- Preliminary Staff Assessment Comments on Noise and Vibration Analysis (June 12, 2025)

Attach. C: Letter to Richard M. Franco, Adams Broadwell Joseph & Cardozo from Scott Cashen re: Comments on Preliminary Staff Assessment for the Willow Rock Energy Storage Center Project) (June 11, 2025)

Attach. D: Reference Documents for Comments of the California Unions for Reliable Energy on the Preliminary Staff Assessment

California Unions for Reliable Energy ("CURE") respectfully submits the following comments on the Preliminary Staff Assessment[1] ("PSA") for the Willow Rock Energy Storage Center Project ("Project" or "Willow Rock").

INTRODUCTION

The PSA prepared for the Willow Rock Project fails to comply with the California Environmental Quality Act ("CEQA").[2] Despite CEQA's stringent requirements for thorough environmental review and public disclosure, the PSA lacks comprehensive analysis, overlooks significant environmental impacts, and fails to propose adequate mitigation measures. These deficiencies undermine the core purposes of CEQA, which is to inform decision-makers and the public about the environmental consequences of proposed projects and to mitigate those impacts to the greatest extent feasible.

On December 1, 2021, GEM A-CAES LLC ("Applicant") filed an Application for Certification ("AFC") to construct and operate a compressed air energy storage facility. On August 9, 2023, the Committee issued an order[3] suspending the AFC proceeding while the Applicant completed its exploration of alternative sites, offsite properties, surface facility configuration and cavern engineering options. On March 1, 2024, the Applicant filed its Supplemental AFC ("SAFC"), changing the Project location to 88.6 acres of private land immediately north of Dawn Road and between State Route 14 and Sierra Highway within unincorporated Kern County, approximately 4 miles north of Rosamond, California.[4]

The Project would be a nominal 520-megawatt ("MW") gross (500 MW net) and 4,160 megawatt-hour ("MWh") gross (4000 MWh net) facility using Hydrostor, Inc.'s proprietary, advanced compression air energy storage ("A-CAES") technology.[5] The facility would consist of four nominal 130 MW gross power turbine trains, outputting a total of 500 MW net at the point of interconnection.[6] The trains would contain electric motor-driven air compressors, heat exchangers, air turbine generators, air exhaust stacks and ancillary equipment.[7] The trains would share a common set of thermal storage tanks (hot and cold water), as well as the air storage cavern.[8] Energy stored at the facility would be delivered to Southern California Edison's Whirlwind Substation via a new approximately 19-mile 230-kilovolt

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[1] TN # 262850, California Energy Commission, Willow Rock Energy Storage Center Project: Preliminary Staff Assessment (April 29, 2025) (hereinafter "PSA").
[2] Pub. Res. Code § 21000 *et seq*.
[3] TN 251599.
[4] TN 254774.
[5] PSA at pp. 1-2.
[6] *Id.*
[7] *Id.*
[8] *Id.*

generation-tie ("gen-tie") line. [9] The facility would be capable of operating on a 24-hour per day basis, 365 days per year with an approximately 50-year life span.[10]

California Energy Commission ("Commission" or "CEC") Staff prepared the PSA to evaluate the potential environmental effects of the construction and operation of the Project, in compliance with CEQA, the Warren-Alquist Act[11], and the California Code of Regulations, Title 20.[12] The PSA also evaluates whether the construction and operation of the Project would conform with all applicable local, state, and federal laws, ordinances, regulations, and standards.[13]

CURE reviewed the PSA, its technical documentation, and available supporting documents with the assistance of its technical experts, including:

- Dr. James J. Clark, Ph.D., M.S., public health and hazards;[14]
- Deborah Jue, noise;[15] and
- Scott Cashen, M.S., biological resources;[16]

Their comments and qualifications are attached hereto as attachments. While their comments are partially summarized herein, the Commission must respond to each technical expert's comments separately and fully.[17]

CURE's comprehensive review of the PSA and the analysis by its technical consultants demonstrates that the PSA fails to comply with CEQA. As detailed below, the PSA improperly piecemeals environmental review of the proposed Project by failing to analyze impacts associated with identified alternate gen-tie line routes and fails to adequately describe all construction, operation, and decommissioning activities. It fails to describe the existing environmental setting for biological resources and sensitive natural communities.

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[9] *Id.*
[10] *Id.*
[11] Pub. Res. Code § 25000 *et seq*.
[12] PSA at p. 2-4.
[13] PSA at p. 2-1.
[14] **Attachment A**, Letter to Richard M. Franco, Adams Broadwell Joseph & Cardozo from James J. Clark, Clark & Associates re: Comments On Willow Rock Energy Storage Center Project, Kern County, CA. California Energy Commission Number: CEC-700-2025-003-PSA Docket Number 21-AFC-02 (June 9, 2025) (hereinafter "Clark Comments")
[15] **Attachment B**, Letter to Richard M. Franco, Adams Broadwell Joseph & Cardozo from Deborah Jue re: Willow Rock Energy Storage Center- Preliminary Staff Assessment Comments on Noise and Vibration Analysis (June 12, 2025) (hereinafter "Jue Comments").
[16] **Attachment C**, Letter to Richard M. Franco, Adams Broadwell Joseph & Cardozo from Scott Cashen re: Comments on Preliminary Staff Assessment for the Willow Rock Energy Storage Center Project) (June 11, 2025) (hereinafter "Cashen Comments")
[17] Pub. Res. Code § 21091(d); 14 Cal. Code Regs. §§ 15088(a), 15132.

Furthermore, the PSA fails to adequately analyze and disclose the Project's environmental impacts and lacks substantial evidence to support many of its impact conclusions. For example, with respect to air quality and public health, the PSA fails to analyze meaningfully the serious risk to Project construction workers and surrounding communities from Valley Fever, and fails to propose feasible mitigation to minimize such risks to the greatest extent feasible. With respect to biological resources, the PSA fails to adequately analyze impacts to numerous special status plant and animal species and their habitat, and fails to demonstrate that chosen mitigation measures will be effective. With respect to noise, the PSA contains analytical errors and omissions that undermine the PSA's conclusions regarding the Project's noise impacts. Moreover, the PSA impermissibly defers formulation of mitigation measures in numerous areas.

Before the Commission considers Project approval, the CEC must revise the PSA to correct these informational and evidentiary deficiencies and recirculate it for additional public review and comment.

LEGAL STANDARD

Certified regulatory programs, such as the Commission's power plant site certification program,[18] are exempt from the provisions of CEQA concerning preparation of environmental impact reports ("EIRs").[19] Instead of preparing an EIR under CEQA, these agencies follow the environmental review process included in their own regulatory program.[20] However, this exemption does not extend to all CEQA requirements.

When conducting its environmental review and preparing documentation, a certified regulatory program remains subject to CEQA's broad policy goals and substantive standards, as outlined in Public Resources Code § 21000 and 21002.[21] These standards require identifying a project's adverse environmental effects, mitigating those effects through feasible alternatives or mitigation measures, and

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[18] Pub. Res. Code §§ 25500-25543; 14 Cal. Code Regs. § 15251(j).

[19] Pub. Res. Code at § 21080.5(c); 14 Cal. Code Regs. at § 15250; *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 943; *Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215; *John R. Lawson Rock & Oil, Inc. v. State Air Resources Bd.* (2018) 20 Cal.App.5th 77, 95; *Pesticide Action Network N. Am. v. California Dep't of Pesticide Regulation* (2017) 16 Cal.App.5th 224, 239.

[20] *Californians for Alternatives to Toxics v. Department of Pesticide Regulation* (2006) 136 Cal.App.4th 1049, 1067.

[21] *Pesticide Action Network N. Am. v. California Dep't of Pesticide Regulation* (2017) 16 Cal.App.5th 224, 239; *POET, LLC v. State Air Resources Bd.* (2013) 218 Cal.App.4th 681, 710; *City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1422; *Environmental Protection Info. Ctr. v. Johnson* (1985) 170 Cal.App.3d 604, 616; *see also* 14 Cal. Code Regs. § 15250; *Californians for Native Salmon & Steelhead Ass'n v Department of Forestry* (1990) 221 Cal.App.3d 1419.

justifying approval actions based on specific, economic, social, or other conditions.[22] The agency must also comply with procedural requirements outside of Chapters 3, 4, or Section 21167 of CEQA.[23]

Courts have characterized agencies' environmental documents – such as the PSA – as the functional equivalent of EIRs because they require similar information.[24] The PSA must include a description of the proposed activity, its significant adverse effects, and a discussion of alternatives and mitigation measures.[25] It should provide comprehensive information on the project's potential significant environmental effects and describe mitigation measures and alternatives to reduce these impacts.[26] Since CEQA's broad policy goals apply, the PSA must contain the same basic environmental information as an EIR, including a project description, impact analysis, mitigation measures, alternatives, and cumulative impacts.[27]

The Commission's power plant certification program requires that staff prepare a preliminary and final environmental assessment of the proposed site and related facilities.[28] The assessment must describe and analyze the project's significant environmental effects, the completeness of the applicant's proposed mitigation measures, and the need for additional or alternative mitigation measures.[29] It must also evaluate the safety and reliability of the project.[30]

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[22] *Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.App.4th 1215.
[23] *See Joy Rd. Area Forest & Watershed Ass'n v. Department of Forestry & Fire Protection* (2006) 142 Cal.App.4th 656, 667 (significant new information in agency's environmental document added after the public comment period required notice and recirculation); *see also Ultramar, Inc. v. South Coast Air Quality Mgmt. Dist.* (1993) 17 Cal.App.4th 689.
[24] *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 943; *Environmental Protection Info. Ctr. v. Department of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 481; *Californians for Alternatives to Toxics v. Department of Pesticide Regulation* (2006) 136 Cal.App.4th 1049, 1059; *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2004) 123 Cal.App.4th 1331, 1340; *Santa Barbara County Flower & Nursery Growers Ass'n v. County of Santa Barbara* (2004) 121 Cal.App.4th 864, 872; *Environmental Protection Info. Ctr. v. Johnson* (1985) 170 Cal.App.3d 604, 611; *Natural Resources Defense Council, Inc. v. Arcata Nat'l Corp. (*1976) 59 CA3d 959, 976.
[25] Pub Res C §21080.5(d)(3); *see Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.App.4th 1215; *Conway v. State Water Resources Control Bd.* (2015) 235 Cal.App.4th 671, 680.
[26] *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 943; *Katzeff v. Department of Forestry & Fire Protection* (2010) 181 Cal.App.4th 601, 608; *County of Santa Cruz v. State Bd. of Forestry* (1998) 64 Cal.App.4th 826, 830.
[27] *Pesticide Action Network N. Am. v. California Dep't of Pesticide Regulation* (2017) 16 Cal.App.5th 224, 247; *Friends of the Old Trees v. Department of Forestry & Fire Protection* (1997) 52 Cal.App.4th 1383, 1393; *Laupheimer v. State* (1988) 200 Cal.App.3d 440, 462; *compare Citizens for Non-Toxic Pest Control v. Department of Food & Agric.* (1986) 187 Cal.App.3d 1575, 1586.
[28] 20 Cal. Code Regs. § 1742(b).
[29] 20 Cal. Code Regs. § 1742(b).
[30] *Id.* at § 1742(d).

Finally, the assessment must provide a description of all applicable federal, state, regional and local laws, ordinances, regulations and standards, and assess the project's compliance with them.[31] In the case of noncompliance, the assessment must describe the staff's efforts with the responsible agencies to correct or eliminate the noncompliance.[32]

Staff may rely on information submitted by parties, other public agencies, members of the public, and experts in the field, as well as any other information obtained through staff's independent research and investigation.[33] The applicant has the burden of producing evidence to support all findings and conclusions required for certification of the site and related facilities.[34] For any additional condition, modification, or other provision relating to the manner in which the proposed facility should be designed, sited, and operated in order to protect environmental quality and ensure public health and safety, the proponent of the measure has the burden of making a reasonable showing to support the need for and feasibility of the proposed condition, modification, or provision.[35]

A public agency commits prejudicial abuse of discretion when its actions or decisions do not substantially comply with the requirements of CEQA.[36] The agency abuses its discretion if it does not proceed in the manner required by law or if its decision is not supported by substantial evidence.[37]

Claims of procedural error or informational inadequacies are questions of law subject to independent review by the courts.[38] An environmental assessment will be held inadequate as a matter of law where (1) it omits information required by law and (2) the omission precludes informed decision-making by the lead agency or informed participation by the public.[39] "[T]he existence of substantial evidence supporting the agency's ultimate decision on a disputed issue is not relevant when one is assessing a violation of the information disclosure provisions of CEQA."[40]

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[31] *Ibid.*
[32] *Id.* at § 1742(e).
[33] *Id.* at § 1742(b).
[34] *Id.* at § 1745(c).
[35] *Id.* at § 1745(d).
[36] Pub. Res. Code §§ 21168, 21168.5.
[37] *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 512; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 426.
[38] *Sierra Club*, 6 Cal.5th at 512-13; *see also Laurel Heights Improvement Assoc. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392, fn. 5; *Woodward Park Homeowners Assoc., Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 705.
[39] *Madera Oversight Coal., Inc. v. County of Madera* (2011) 199 Cal.App.4th 48, 76-77.
[40] *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 82, quoting *Assn. of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1392.

The environmental assessment must disclose the analytic route the agency traveled from evidence to action, and failure to do so amounts to a procedural error—not a factual one.[41] If it lacks analysis or omits the magnitude of an environmental impact, the issue is "not a substantial evidence question" – rather, the courts review the issue de novo.[42] In other words, a conclusory discussion of an environmental impact deemed significant may be held to be inadequate as a matter of law "without reference to substantial evidence," even where mixed questions of law and fact are involved.[43] Only where factual questions *predominate* is a more deferential standard warranted.[44]

The substantial evidence standard applies to an agency's substantive factual conclusions, findings or determinations.[45] Like EIRs, the PSA must use substantial evidence to support its conclusions.[46] Substantial evidence means "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."[47] This includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts, but it does not include argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment.[48]

GENERAL COMMENTS

A. The PSA Must Be Revised and Recirculated for Public Comment

In the approval process for an application for certification of a power plant project, the Commission acts as lead agency under CEQA.[49] Because a PSA is the

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[41] *Sierra Club*, 6 Cal.5th at 513, *quoting Topanga Assn. for a Scenic Community v. City of L.A.* (1974) 11 Cal.3d 506, 515.
[42] *Id.* at 514.
[43] *Ibid.*; *see also Save the Hill Group v. City of Livermore* (2022) 76 Cal.App.5th 1092, 1103-04.
[44] *Sierra Club*, 6 Cal.5th at 514, 516 (emphasis added).
[45] Pub. Res. Code § 21168.
[46] *Id.* at § 21168; *see Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal.4th 936; *Joy Rd. Area Forest & Watershed Ass'n v. Department of Forestry & Fire Protection* (2006) 142 Cal.App.4th 656, 677; *Mountain Lion Coalition v. Fish & Game Comm'n* (1989) 214 Cal.App.3d 1043, 1047.
[47] 14 Cal. Code Regs. § 15384(b).
[48] *Id.* at § 15384(a).
[49] Pub. Res. Code § 25519(c).

functional equivalent to a draft EIR,[50] the draft environmental document prepared by Staff must meet CEQA's standards to inform decision-makers and the public of a project's environmental impacts.

CEQA has two basic purposes. Unfortunately, the PSA falls short of satisfying either of them. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project.[51] The PSA, like an EIR, is the "heart" of this requirement.[52] 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."[53] CEQA mandates that an EIR, or EIR equivalent, be prepared "with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences."[54] Further, in preparing an environmental document, "an agency must use its best efforts to find out and disclose all that it reasonably can."[55] Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures.[56]

The PSA fails to satisfy these purposes because it lacks the information necessary for a CEQA-compliant document. Although the PSA purports to contain similar analysis to those contained in an EIR, the PSA does not contain the information required by CEQA and its implementing guidelines.[57] As discussed in detail below, the PSA's analysis lacks support for its significance determinations. In several areas, the PSA includes Conditions of Certification ("COCs") that require study or analysis be done at some future date, after a decision on certification by the Commission. The PSA therefore lacks sufficient information to determine all of the Project's potentially significant environmental impacts and whether mitigation is required to address such impacts.

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[50] *See* Memorandum of Understanding Between the U.S. Department of the Interior, Bureau of Land Management California Desert District and the California Energy Commission Staff, Concerning Joint Environmental Review For Solar Thermal Power Plant Projects, p. 4, available at http://www.energy.ca.gov/siting/solar/BLM_CEC_MOU.PDF ("[t]he assessments provided by the Parties must be sufficient to meet all federal and state requirements for NEPA and CEQA and shall be included as part of the joint Preliminary Staff Assessment/Draft Environmental Impact Statement and the joint Final Staff Assessment/Final Environmental Impact Statement.")
[51] 14 Cal. Code Regs. § 15002(a)(1).)
[52] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 84.
[53] *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795.
[54] 14 Cal. Code Regs. § 15151.
[55] *Id.* at § 15144.
[56] *Id.* at § 15002(a)(2) and (3). *See also Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal.3d 376, 400.
[57] Pub. Res. Code § 21100; 14 Cal. Code Regs. §§ 15120(c), 15122-15131.

CEQA requires recirculation of an EIR, or EIR equivalent, when significant new information is added to the EIR following public review but before certification.[58] The CEQA Guidelines clarify that new information is significant if "the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect."[59] The purpose of recirculation is to give the public and other agencies an opportunity to evaluate the new data and the validity of conclusions drawn from it.[60] Consequently, Staff's objective to include numerous additional analyses and mitigation measures after public review and comment on the PSA violates CEQA. Rather, Staff must recirculate a revised PSA that includes the outstanding analyses and currently unidentified mitigation measures.

As shown below, the PSA must be revised to inform the public and decision makers of the Project's significant impacts, and to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures. Thus, Staff, after receiving the necessary information from the Applicant to draft a complete PSA, must correct the shortcomings outlined below, and circulate a revised PSA for public review and comment.

B. The PSA Improperly Defers the Identification of Mitigation Measures

Several of the Conditions of Certification ("COC") in the PSA impermissibly defer the preparation of plans, reports, and/or studies as mitigation for the Project's significant environmental effects until after certification and without specific performance standards. The PSA also defers to other agencies to analyze the impacts or identify mitigation measures for the Project. The following measures are improperly deferred until after the Commission has certified the Project:

- COC GEO-1: If certain investigative conditions exist, this condition (1) requires the Project owner to perform geotechnical investigations for questionable soils, expansive soils, shallow groundwater, deep foundations, rock strata, excavations near foundations, compacted fill material, controlled low-strength material and alternate setback and clearance; (2) requires a geotechnical report that documents the results from the geotechnical investigations and provides project design recommendations to mitigate geologic hazard; (3) requires a geohazards report that considers seismic

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[58] Pub. Res. Code § 21092.1.
[59] 14 Cal. Code Regs. § 15088.5.
[60] *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (1981) 122 CalApp3d 813, 822.

hazards, identifies conditions that may require mitigation and recommends project design criteria to mitigate geologic and seismic hazards.[61]

- COC HAZ-1: this condition requires the Project owner to prepare a Hazardous Materials Business Plan and a Spill Prevention Control and Countermeasure Plan, one of each for construction and operations at least 60 days prior to the start of construction and 60 days prior to the start of operations.[62]

- COC HAZ-6: this condition requires the Project owner to prepare a Soils Management Plan at least 45 days prior to any ground disturbance.[63]

- COC SOLID WASTE-1: this condition requires the Project owner to prepare a Construction Waste Management Plan and an Operation Waste Management Plan no less than 30 days prior to the start of construction site mobilization and Project operation, respectively. Such plans must include a description of all waste streams, including projections of frequency, amounts generated and hazard classifications, and methods of managing all waste including treatment methods, waste testing methods to ensure correct classification, methods of transportation, disposal requirements and site, and recycling and waste minimization/reduction plans.[64]
- COC TRANS-1: this condition requires the Project owner to prepare a Construction Traffic Management Plan at least 30 calendar days prior to the start of construction. This plan is to address movement of workers, vehicles, equipment and materials, traffic control plans and emergency access. It also must include traffic demand management measures to reduce project-generated VMT during construction.[65]

The staff assessment in an AFC proceeding is an independent report by Commission Staff that evaluates "the significant environmental effects of a project, the completeness of the applicant's proposed mitigation measures, and the need for, and feasibility of, additional or alternative mitigation measures."[66] Identifying all feasible mitigation measures is crucial to assist the Commission in meeting CEQA's requirement that mitigation measures be identified for each significant effect. The COCs and mitigation measures identified above defer analysis of potentially significant impacts to a time after the Commission's certification decision, and

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[61] PSA at p. 5.6-53.
[62] *Id.* at p. 5.7-33.
[63] *Id.* at p. 5.7-37.
[64] *Id.* at p. 5.12-9.
[65] *Id.* at p. 5.14-23.
[66] 20 Cal. Code Regs. § 1742.

thereby preclude identification of adequate mitigation measures to address impacts that may be revealed by such analysis. The Commission should require that the Applicant prepare all necessary studies prior to certification, so that CEC staff can devise mitigation measures that adequately minimize significant adverse impacts consistent with CEQA's requirements.

The mitigation measures in the PSA fail to provide adequate assurance that a future plan, report, or study will actually mitigate the Project's significant environmental impacts. Under CEQA, "[f]ormulation of mitigation measures should not be deferred until some future time."[67] "Deferred mitigation violates CEQA if it lacks performance standards to ensure the mitigation goal will be achieved."[68] An EIR is inadequate if "[t]he success or failure of mitigation efforts…may largely depend upon management plans that have not yet been formulated, and have not been subject to analysis and review within the EIR."[69] "A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA."[70]

Several CEQA cases establish that mitigation measures relying on tentative plans or studies for future mitigation after project approval "significantly undermine[] CEQA's goals of full disclosure and informed decision making; and consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment."[71] For instance, in *Sundstrom*, the court rejected a determination that a project would not result in significant impacts because the success of mitigation was uncertain.[72] In that case, two mitigation measures called for a hydrological study and a soil study to be prepared to determine whether the project would have adverse effects.[73] The court stated "[b]y deferring environmental assessment to a future date, the conditions run counter to that policy of CEQA which requires environmental review at the earliest feasible stage in the planning process."[74] A study conducted after approval of a project will diminish the influence on decision making and "[e]ven if the study is subject to administrative approval, it is analogous to the sort of post hoc

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[67] 14 Cal. Code Regs. § 15126.4(a)(1)(B).
[68] *Golden Door Properties, LLC v. Cnty. of San Diego* (2020) 50 Cal.App.5th 467, 520.
[69] *San Joaquin Raptor Rescue Ctr. v. Cnty. of Merced* (2007) 149 Cal.App.4th 645, 670, *as modified* (Apr. 11, 2007).
[70] *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307.
[71] *Communities for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70, 92; *see, e.g., Gentry v. Murrieta* (1995) 36 Cal.App.4th 1359; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.
[72] *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 306-07.
[73] *Id.* at p. 306.
[74] *Id.* at p. 307.

rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA."[75] An agency cannot hide behind its failure to gather relevant data.[76]

Additionally, in *Communities for a Better Environment v. City of Richmond*, the court held that the GHG mitigation plan was deficient and deferred because it "merely propose[d] a generalized goal of no net increase in greenhouse gas emissions and then set[] out a handful of cursorily described mitigation measures for future consideration that might serve to mitigate the 898,000 metric tons of emissions resulting from the Project."[77] The court determined that the mitigation measures were undefined, and "[t]he only criteria for 'success' of the ultimate mitigation plan" was "the subjective judgment of the City Council, which presumably will make its decision outside of any public process a year after the Project has been approved."[78] The court concluded that the mitigation plan violated CEQA because it "offered no assurance that the plan for how the [p]roject's greenhouse gas emissions would be mitigated to a net-zero standard was both feasible and efficacious…."[79]

The PSA improperly defers several mitigation measures to future studies or plans without adequate performance standards in violation of CEQA's requirements. Although CEQA allows for certain aspects of mitigation to be appropriately deferred, the PSA fails to do so here. For example, COC GEO-1 defers the performance of geotechnical investigations and identification of measures to reduce hazards from (a) strong seismic ground shaking, (b) seismically-induced ground failure including liquefaction, (c) landslides, (d) soil settlement and lateral spreading, and (e) expansive soils.[80] Not only does this measure defer study of Project site geotechnical conditions necessary to evaluate Project impacts, it lacks performance standards which are critical to determining the efficacy of any mitigation measures deemed necessary as a result of such studies. Nor is there any explanation as to why completion of the studies or inclusion of specific performance standards was infeasible at the time the PSA was prepared.

In the same way, each of the COCs identified above improperly defer analysis and mitigation. Each of these COCs is relied upon as support for conclusions that the Project will not have significant effects on the environment. Given that these conclusions rest in part on studies yet to be performed and mitigation measures yet

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[75] *Ibid., citing to Mount Sutro Defense Committee v. Regents of University of California* (1978) 77 Cal.App.3d 20, 35.
[76] *Ibid.*
[77] *Communities for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70, 93.
[78] *Ibid.*
[79] *Id.* at p. 95.
[80] PSA at pp. 5.6-24, 5.6-26, 5.6-28, 5.6-29 and 5.6-31.

to be specified, the conclusions are not supported by substantial evidence. The PSA must be revised to ensure that all of the Project's impacts are analyzed, and all feasible mitigation measures are identified and shown to adequately reduce impacts to a less than significant level.

PROJECT DESCRIPTION AND PIECEMEALING

Under CEQA, an EIR must "set forth a project description that is sufficient to allow an adequate evaluation and review of the environmental impact."[81] An accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity.[82] "An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[83] Accordingly, a lead agency may not hide behind its failure to provide a complete, accurate, and stable project description.[84]

Courts have held that "[o]nly through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal...and weigh other alternatives in the balance."[85] As articulated by the court in *County of Inyo v. City of Los Angeles*, "a curtailed, enigmatic or unstable project description draws a red herring across the path of public input."[86] Without a complete project description, the environmental analysis under CEQA is impermissibly limited, thus minimizing the project's impacts and undermining meaningful public review.[87]

As part of CEQA's requirement that the environmental review document include an adequate project description, a project description must include all relevant parts of the project. A project under CEQA refers to the "whole of an action which has the potential for resulting in either a direct physical change in the environment, or reasonably foreseeable indirect physical change in the environment."[88] CEQA prohibits segmenting the review of the significant environmental impacts.[89] This mandate ensures that environmental considerations are not diluted by dividing a large project into smaller ones, each with a minimal

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[81] *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 654 (citing CEQA Guidelines § 15124).
[82] *McQueen v. Board of Directors* (1988) 202 Cal.App.3d 1136, 1143.
[83] *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829-830.
[84] *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311 ("*Sundstrom*").
[85] *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829-830.
[86] *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 197-198.
[87] *See, e.g., Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1988) 47 Cal.3d 376.
[88] 14 Cal. Code Regs. § 15378(a).
[89] *Laurel Heights Improvement Assn.,* 47 Cal. 3d at 396; *See also* Pub. Res. Code § 21002.1(d).

potential impact, which cumulatively may have disastrous consequences.[90] Public agencies must interpret the project broadly to encompass the whole of the action and its environmental impacts.[91]

Before undertaking a project, the lead agency must assess the environmental impacts of all reasonably foreseeable phases. Public agencies cannot segment a large project into smaller parts to obscure serious environmental consequences.[92] The court in *Laurel Heights Improvement Association v. Regents of University of California* ("*Laurel Heights*") emphasizes that "[t]he CEQA process is intended to be a careful examination, fully open to the public, of the environmental consequences of a given project, covering the entire project, from start to finish."[93] "[A]n EIR must include a [*sic*] analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects."[94]

Here, the PSA engages in improper piecemealing and otherwise lacks a CEQA-compliant project description in the following ways: (1) the PSA fails to consistently describe the extent of the Project's access roads for the gen-tie line or to provide sufficient information to allow analysis of impacts associated with construction and maintenance of the roads; (2) the PSA inconsistently describes the location of the Project's preferred gen-tie line route; (3) the PSA fails to analyze and disclose impacts associated with the optional gen-tie line routes; and (4) the PSA lacks any analysis of impacts associated with Project decommissioning. The PSA fails to provide a complete, accurate and stable project description. Consequently, the PSA's impact analysis is fundamentally flawed due to its inaccurate project description and omission of adequate analysis related to these critical areas.

A. The PSA Fails to Describe the Access Road Construction Required for the Project

The PSA's Project Description includes a listing of Project features, which include an "estimated up to 1.5 miles of unpaved temporary access road along the

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[90] *Id.*; *See also City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1452; *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 165.
[91] 14 Cal. Code Regs. § 15378.
[92] *See Citizens Assn. for Sensible Development of Bishop Area,* 172 Cal. App.3d 165-68.
[93] *Natural Resources Defense Council v. City of Los Angeles* (2002) 103 Cal.App.4th 268; *see also Whitman v. Board of Supervisors* (1979) 88 Cal.App.3d 402 (EIR for an exploratory oil well that failed to analyze the impacts associated with a proposed pipeline was inadequate and violated CEQA).
[94] *Laurel Heights Improvement Assn. v. Regents of Univ. of California* (1988) 47 Cal.3d 376, 396, *as modified on denial of reh'g* (Jan. 26, 1989).

gen-tie line corridor as needed (approximately 3.7 acres)."[95] In discussing impacts to biological resources, the PSA states that the Project's access roads would only impact 2.09 acres of land (2.04 acres of creosote bush-white bursage scrub and .05 acres of disturbed/undeveloped land).[96] Elsewhere, the PSA states that Project features will include an "estimated up to 1.75 miles of unpaved service access road along the gen-tie line corridor as needed (~4 acres of permanent disturbance.")[97]

As an initial matter, the PSA lacks a stable description of the nature and extent of access roads associated with the gen-tie line. It is unclear whether the Project will include 1.5 or 1.75 miles of road, whether such roads will impact 2.09 or 3.7 (or more) acres of land, and whether the access roads will be temporary or permanent. The PSA lacks any map, diagram or description of where access roads are expected to be constructed. The PSA also lacks any discussion of the nature and duration of road construction or how the roads would be used and maintained after construction. Access road construction on currently undisturbed ground can have a host of impacts, including impacts to existing plant species and wildlife habitat. "Roads cause nearly complete destruction of soil conditions and plant cover, and they serve as a vector for introduced plant and animal species. In addition, roads cause mortality of animals; habitat fragmentation (with concomitant restriction of movements and gene flow); increased sedimentation; and increased access to remote areas for illegal dumping, collection of plants and animals, and anthropogenic fire."[98] As a result, it is critical that the PSA be revised to provide complete and accurate information on the amount of road construction necessary to install and maintain the Project's gen-tie line, and all potential impacts associated with such roads must be analyzed and disclosed.

B. The PSA Fails to Accurately Describe the Location of the Gen-Tie Line

As noted above, the Project will include an approximately 19-mile gen-tie line to connect the Project's energy storage facility to Southern California Edison's Whirlwind Substation. The PSA includes diagrams that map the preferred and optional gen-tie line routes.[99] However, the PSA does not appear to reflect changes made to the preferred gen-tie line route. In response to CEC Data Request 6, the Applicant provided a Vegetation Impacts Mapbook, which depicts areas that will be impacted by installation of the gen-tie line, including vegetation and land cover types that will be affected.[100] In several areas along the 19-mile gen-tie route, the

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[95] PSA at p. 3-3.
[96] PSA, Table 5.2-10 at p. 5.2-146.
[97] PSA at p. 5.4-21.
[98] Cashen Comments, p. 3.
[99] PSA, Appendix C.
[100] TN 261516, Data Request 6 Response, Attachment DR125-1.

Mapbook indicates both the preferred gen-tie route as well as portions identified as "superseded."[101] However, the superseded routes are still shown in PSA Appendix C as the preferred routes. It appears that the PSA does not accurately reflect the currently planned gen-tie route for the Project, and therefore cannot accurately analyze Project impacts from the gen-tie line.

As noted above, the PSA attempts to quantify impacts to vegetation associated with construction of the preferred gen-tie route. However, the PSA also identifies optional gen-tie routes in certain areas, but fails to provide comparable information with respect to vegetation impacts at the optional routes. If those optional routes are utilized, the impacts to biological resources along those routes are unknown. In addition, there are no figures or maps depicting the proposed transmission pole construction sites, access roads, pull and tensioning sites and other areas where ground disturbance would occur if one or more of the gen-tie route options is selected. Selection of optional routes would have real-world impacts which are completely unexamined in the PSA. For example, unlike the preferred route, gen-tie route options 2a and 2b would require road construction through a Joshua tree woodland (a sensitive natural community).[102] Use of those route options would substantially increase Project impacts to western Joshua tree and associated habitat, impacts that are neither analyzed nor disclosed.

C. The PSA Fails to Describe Decommissioning Activities for the Project

The decommissioning phase is a critical component of this Project, yet the PSA's project description omits a complete and accurate discussion of these activities. Courts have held that reclamation is "simply the final phase of the overall usage of the land" and must be considered with the construction and operational phases.[103]

The PSA provides only a vague discussion of decommissioning, and calls for a detailed plan only upon closure of the facility years in the future, thereby failing to satisfy CEQA's requirement for a comprehensive project description. The PSA states only that the future decommissioning plan would discuss "proposed decommissioning activities for Willow Rock and all appurtenant facilities constructed as part of Willow Rock," "conformance of the proposed decommissioning activities to all applicable LORS and local/regional plans," and "associated costs of

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[101] *Id.*, Figures DR125-1, -5, -11 and -21.
[102] *Id.,* Figure DR125-4.
[103] *Nelson v. County of Kern* (2010) 190 Cal.App.4th 252, 272.

the proposed decommissioning and the source of funds to pay for the decommissioning."[104]

The entire discussion in the PSA's project description is as follows: "In general, the decommissioning plan for Willow Rock would attempt to maximize the recycling or re-use of all facility components. It is anticipated that the potential cavern rock architectural berm would remain in place to minimize environmental impacts associated with its removal. It would be decommissioned such that no ongoing maintenance is needed for flood control. All nonhazardous wastes would be collected and disposed of in appropriate landfills or waste collection facilities. All hazardous wastes would be disposed of according to all applicable LORS."[105]

The PSA fails to provide an adequate description of all activities associated with closure and decommissioning of the facility, and lacks any analysis whatsoever of the associated environmental impacts. This cursory discussion fails to disclose even basic details regarding key decommissioning activities such as facility demolition, removal and disposal of Project components, or the return of the site to pre-Project conditions.

This complete failure to describe and analyze the decommissioning phase of the Project necessitates that the PSA be revised and recirculated to provide a complete and accurate description of the proposed decommissioning activities and their impacts. CEQA requires the PSA to analyze not only the impacts of all activities associated with building and operating the Project, but also activities expected during the final phase of the Project.

By failing to accurately describe the decommissioning activities, the PSA overlooks potentially significant impacts that could arise from this phase of the Project. Depending on the nature and extent of such activities, decommissioning may involve processes similar to those during Project construction, such as dismantling, demolition, recycling, site remediation and/or restoration, and exterior maintenance. These activities are expected to involve soil disturbance, heavy equipment use, and truck trips, potentially resulting in significant impacts related to noise, erosion, air quality, solid waste management, hazardous materials, and transportation. The PSA fails to disclose or evaluate any of these potential impacts, which must be remedied in a revised and recirculated document.

AIR QUALITY

[104] PSA at p. 3-41.
[105] *Id.*

A. The PSA Lacks Substantial Evidence to Conclude Valley Fever Impacts Are Less Than Significant

Valley Fever is an infectious disease caused by inhaling *Coccidioides* spores, which poses a significant health risk when soil containing these spores is disturbed.[106] Activities such as agricultural operations, dust storms or earthquakes can release these spores into the air.[107] This fungus usually infects the lungs and can cause respiratory symptoms including cough, fever, chest pain, and fatigue.[108] Severe cases of Valley Fever can even be fatal.[109] Construction workers, along with individuals living or working near areas where dirt and soil are disturbed have a heightened risk of contracting the disease.[110] Valley Fever is highly endemic to Kern County, where the Project site is located.[111] "Highly endemic" refers to an annual incidence rate greater than 20 cases per 100,000 people per year.[112] Kern County has some of the highest rates of Valley Fever in California, making the risk of exposure at the proposed Project site particularly high.[113]

The PSA acknowledges that Project construction could expose workers and the public to the risk of Valley Fever.[114] However, it concludes health risks from Valley Fever are less than significant and that with implementation of mitigation measures (including COCs WORKER SAFETY-7 and PH-1), Valley Fever "would not be a major concern" for either workers or the public.[115]

However, the PSA downplays the severity of the risk to workers and the general public from Valley Fever, and does not include adequate mitigation to support the conclusion that public health, including worker impacts, will be less than significant.

The primary risk factor for Valley Fever infection is exposure to dust.[116] The Project will be constructed on approximately 88.6 acres of currently

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[106] PSA at p. 5.10-6.
[107] Clark Comments at p. 9.
[108] Kern County Public Health, Illness & Disease: Valley Fever, available at: https://www.kernpublichealth.com/healthy-community/illness-disease/valley-fever.
[109] California Department of Public Health, Valley Fever: Groups At Risk, available at: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ValleyFeverGroupsAtRisk.aspx.
[110] California Department of Public Health, Valley Fever: Groups At Risk, available at: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ValleyFeverGroupsAtRisk.aspx.
[111] Cal. Lab. Code § 6709(b).
[112] Cal. Lab. Code § 6709(b).
[113] "Valley Fever Fact Sheet," California Department of Public Health, June 2021, *available at:* https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ValleyFeverFactSheet.pdf.
[114] PSA at pp. 4.4-18, 5.10-5.
[115] PSA at p. 5.10-21.
[116] Clark Comments at p. 10.

undeveloped land, and construction activity will include up to 122.2 acres of total laydown areas including cavern construction laydown area, construction phase earthwork areas, cavern rock temporary re-use areas and parking areas located on adjacent and nearby parcels.[117] The substantial amount of land disturbance associated with Project construction suggests a potentially significant risk of Valley Fever exposure, as research has shown that large-scale renewable energy construction projects increase the incidence rate for Valley Fever proportionally to the number of disturbed soil acres.[118]

The PSA relies on conventional dust control measures to mitigate the risk of Valley Fever; such mitigation measures are inadequate. COC WORKER SAFETY-7 refers to COCs AQ-SC3 and AQ-SC4 to address fugitive dust emissions. AQ-SC3 requires the preparation of a fugitive dust control plan that implements "enhanced" dust control measures.[119] AQ-SC4 mandates monitoring for visible dust plumes and implementation of additional mitigation measures.[120] These measures, however, rely on visual monitoring of dust plumes which may reduce, but not eliminate, migration of Project construction-generated dust offsite.[121] Compliance with these measures depends on a visual opacity reading for dust control based on smoke-monitoring methods that require active monitoring by certified observers, rely on subjective observation, and are affected by variables including lighting, weather conditions and distance.[122] Conventional dust control measures, such as AQ-SC3 and AQ-SC4, which primarily focus on visible dust or larger dust particles fail to address the very fine particles that transport Valley Fever spores. These spores are approximately 5 times smaller than typical PM_{10} particles and can remain airborne much longer.[123] Invisible to the human eye, these spores can persist in seemingly clear air, rendering the visual monitoring specified in AQ-SC4 insufficient to protect the public, including site workers. Standard fugitive dust mitigation measures, like those proposed in AQ-SC3, do nothing to prevent the spread of the fungus and are not effective at controlling Valley Fever because they are largely focused on controlling visible dust or larger dust particles.[124] These measures fall short in protecting workers and offsite receptors against the risk of Valley Fever infection.

Given these deficiencies, the PSA lacks substantial evidence to conclude that the Project's Valley Fever impacts are less than significant. The PSA must be

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[117] PSA at pp. 3-1, 3-3.
[118] Clark Comments at pp. 12-13.
[119] PSA at p. 5.1-31 to 5.1-34.
[120] *Id.* at p. 5.1-34.
[121] Clark Comments at pp. 14-16.
[122] Clark Comments at pp. 15-16.
[123] Clark Comments at p. 15.
[124] *Id.*

revised to address these critical issues and provide effective measures to mitigate the risk of Valley Fever exposure.

To mitigate potentially significant Valley Fever impacts, Dr. Clark recommends additional feasible mitigation measures. First, he recommends pre-construction soil surveys of the site to identify whether Valley Fever spores are present; if present, removal of impacted soils is the best solution to prevent the airborne spread of Valley Fever spores.[125] Such sampling would also allow the Project to implement other measures to actively suppress spread. Dr. Clark recommends active monitoring with dust monitors (particle measuring devices) immediately outside of the facility and around its perimeter.[126] Continuous particle measures would offer several advantages over methods proposed in the PSA. Such monitoring eliminates the subjectivity inherent in visual opacity readings, leading to more reliable and consistent data. It allows for real-time tracking of dust particle levels, enabling prompt corrective actions if thresholds are exceeded. And it offers robust data sets that can be used for repeatability testing and to validate compliance with air quality standards. Incorporating active dust monitoring systems would ensure that air quality impacts are accurately assessed and mitigated, fulfilling the intent of the mitigation measures and conditions of compliance to protect public, including worker, health.

BIOLOGICAL RESOURCES

A. The PSA Fails to Adequately Analyze the Existing Environmental Setting for Biological Resources

CEQA requires that a lead agency include a description of the physical environmental conditions in the vicinity of the Project as they exist at the time environmental review commences.[127] As numerous courts have held, the impacts of a project must be measured against the "real conditions on the ground."[128] The description of the environmental setting constitutes the baseline physical conditions by which a lead agency may assess the significance of a project's impacts.[129] Use of the proper baseline is critical to a meaningful assessment of a project's environmental impacts.[130] An agency's failure to adequately describe the existing setting contravenes the fundamental purpose of the environmental review process,

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[125] *Id.* at p. 16.
[126] *Id.*
[127] 14 Cal. Code Regs. § 15125(a).
[128] *Save Our Peninsula Com. v. Monterey Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121-22; *City of Carmel-by-the Sea v. Bd. of Supervisors* (1986) 183 Cal.App.3d 229, 246.
[129] 14 Cal. Code Regs. § 15125(a).
[130] *Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310, 320.

which is to determine whether there is a potentially substantial, adverse change compared to the existing setting.

Baseline information on which a lead agency relies must be supported by substantial evidence.[131] The CEQA Guidelines define "substantial evidence" as "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion."[132] "Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts ... [U]nsubstantiated opinion or narrative [and] evidence which is clearly inaccurate or erroneous ... is not substantial evidence."[133]

The PSA's discussion of the existing environmental setting on and around the Project site relies on surveys and studies provided by the Applicant with respect to biological resources. In many instances, the information provided by the Applicant is vague, misleading or contradictory. These shortcomings prevent the PSA from providing adequate impact assessments or determining the efficacy of proposed mitigation measures.

1. *The PSA Fails to Adequately Analyze the Existing Baseline for Rare Plants*

The PSA fails to adequately analyze the existing environmental setting with respect to rare plants, as the survey efforts by Applicant's biological consultants are not accurately documented or reported. As a general matter, the PSA acknowledges there are portions of the Project study area that could not be surveyed for sensitive biological resources because the Applicant's biologists did not have right of entry.[134] However, the PSA does not identify the specific areas that Staff believes were not surveyed. This has implications on the adequacy of the information used to describe the Project's environmental setting, which in turn has implications on the adequacy of the PSA's impact assessment and proposed mitigation.

For purposes of its biological resources assessment, the PSA defines the "study area" as the Project site plus a 1,000-foot buffer around the WRESC site and a 500-foot buffer around the gen-tie alignment.[135] According to the PSA: "[f]ocused

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[131] *Id.* at 321 (stating "an agency enjoys the discretion to decide […] exactly how the existing physical conditions without the project can most realistically be measured, subject to review, as with all CEQA factual determinations, for support by substantial evidence"); *see Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.
[132] 14 Cal. Code Regs. §15384.
[133] Pub. Res. Code § 21082.2(c).
[134] PSA at pp. 5.2-24 and -153.
[135] PSA at p. 5.2-1.

rare plant surveys were conducted within the study area by the applicant from April to July 2023, and from April to June 2024."[136] As explained by Mr. Cashen, this statement is misleading for the following reasons.

First, the Applicant did not in fact survey the entire study area for rare plants. The PSA discloses that "[i]t should be noted that there were several areas, particularly surrounding the WRESC, P1, P2 North, P2 South, and Villa Haines sites that were not accessed during focused rare plant surveys and that could support additional occurrences of special-status plant species."[137]

Second, according to the Biological Resources Assessment Report, upon which the PSA's biological resources analysis is based, the study area for rare plants included a *500-foot* buffer, not a 1,000-foot buffer, around the WRESC site.[138] Additionally, substantial portions of the 500-foot buffer area could not be effectively surveyed for rare plants because the biologists had "no right of entry."[139] Some of the areas that could not be surveyed for rare plants would be directly impacted by ground disturbance associated with installation of the gen-tie line.

Third, the Applicant provided conflicting information as to portions of the study area which were accessible and that were therefore surveyed according to California Department of Fish and Wildlife ("CDFW") Botanical Survey Protocols. For example, the maps provided with the Applicant's rare plant survey reports indicate the biologists did not have right of entry to a substantial portion of the P1 site in either 2023 or 2024.[140] According to the Applicant's response to CURE data request 9 (TN 259338), no field work was possible in this area due to lack of property owner permission. However, in response to CEC data request 82, the Applicant provided Figure DR82-A, which depicts the entire P1 site as within a right of entry area, suggesting that all of the P1 site was surveyed.[141]

Mr. Cashen documents additional inconsistencies with respect to areas surveyed for the presence of special-status plants. The Applicant provided a confidential map book depicting the locations of special-status plants detected during the 2023 surveys (TN 256491). The map book identifies "Portions of the Survey Area Not Surveyed," which suggests that all other areas were surveyed. In response to CURE Data Request 8 (TN 259338), the Applicant provided a map book

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[136] PSA, p. 5.2-23.
[137] PSA, p. 5.2-193.
[138] TN 254816, *WRESC Biological Resources Assessment Report, Table 1; see also,* TN 258313, *Willow Rock Sensitive Plant Survey 2024 Addendum*, p. 2.
[139] TN 254806, SAFC Figure 5.2-6. *See also* Sensitive Plants Mapbooks (TN 258884 and TN 258872).
[140] *Ibid*.
[141] *See* Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, FigureDR82-A.

depicting the areas that could not be surveyed because the Applicant did not have right of entry. There are numerous inconsistencies between these two map books.[142]

The PSA also provides information regarding particular plant species that conflicts with data provided by the Applicant. For example, according to the PSA, sagebrush loeflingia was detected during the Applicant's surveys: "Approximately 20 individual plants were observed within the western edge of the P1 site north of Dawn Road during 2023 focused rare plant surveys conducted by the applicant (WSP 2024d). It was also observed during surveys in 2024 near Felsite Avenue along disturbed access roads associated with the gen-tie component of the project area (WSP 2024v)."[143] These statements are not consistent with the information provided by the Applicant. According to the Online Field survey report submitted to the California Natural Diversity Database ("CNDDB"), 1,700 sagebrush loeflingia plants were detected near the western border of the P1 site during the 2023 surveys.[144] Additional sagebrush loeflingia plants were detected within and adjacent to the P1 site during the 2024 surveys,[145] but the Applicant did not quantify the number of plants detected (*see* TN 258313). This issue is further confounded by the Applicant's maps, which provide conflicting information on the specific locations of sagebrush loeflingia plants in relation to the P1 site.[146]

Similar to sagebrush loeflingia, alkali mariposa lily was detected during the Applicant's 2023 surveys but the information provided in the PSA is inconsistent with the information provided by the Applicant. According to the PSA: "[a] small population of approximately 20 alkali mariposa lily individuals was observed along Rosamond Boulevard at 95th Street and within a section of the gen-tie component of the project site during 2023 focused rare plant surveys conducted by the applicant (WSP 2024d)."[147] However, according to the Applicant's CNDDB Online Field Survey Report, 82 alkali mariposa lilies were detected at that location.[148]

These inconsistencies in describing the existing environmental setting completely undermine the PSA's analysis and proposed mitigation of project impacts to rare plants. COC BIO-12 requires compensatory mitigation if more than 10 percent of a CRPR 1 or 2 ranked plant occurrence is subject to loss from Project disturbance.[149] Therefore, accurate information on the abundance, distribution and

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[142] Cashen Comments at pp. 6-7.
[143] PSA, p. 5.2-58.
[144] TN 256485, Confidential CNDDB Forms.
[145] *See* TN 259736 Willow Rock Data Request Set 4 Response, Attachment DR82-1, FigureDR82-A. *See also* TN 254806 SAFC, Figure 5.2-6. *See also* Sensitive Plants Mapbooks (TN 258884 and TN 258872).
[146] *Ibid.*
[147] PSA, p. 5.2-55.
[148] Confidential CNDDB Forms (TN 256485).
[149] PSA, p. 5.2-243.

location of special-status plants that would (or could) be impacted by the Project is critical to ensuring effective mitigation.

The PSA should be revised and recirculated to accurately characterize the existing environmental setting concerning rare plants to ensure a proper assessment of the Project's impacts.

2. The PSA Fails to Adequately Analyze the Existing Baseline for Western Joshua Tree

According to the PSA, the Applicant conducted western Joshua tree census surveys in 2023 and 2024 pursuant to CDFW census instructions, and the surveys were field-verified in 2024.[150] The survey area was reported to include the Project site plus a 290-foot buffer, except for the gen-tie alignments, portions of which were inaccessible.[151] The PSA reports that a total of 3,970 western Joshua trees were recorded in the survey area during the 2024 verification census performed by the Applicant.[152] However, as explained by Mr. Cashen, the Applicant did not conduct a census of all western Joshua trees in the survey area, nor did all surveys adhere to CDFW's census instructions.[153]

First, not all of the land within the 290-foot buffer around the Project site was included in the Joshua tree verification census. The maps provided by the Applicant demonstrate that some of the buffer areas were not included in the verification census, apparently because the Applicant lacked right of entry. This includes a parcel south of the southeast corner of the WRESC site and several parcels adjacent to the P1, P2 and Villa Haines sites.[154]

Second, for portions of the survey area, the census was conducted by using binoculars to scan properties from a distance.[155] As Mr. Cashen explains, using binoculars to search for distant western Joshua trees is not an accepted or reliable method for conducting a Joshua tree census, as small trees are often hidden under shrubs or obscured at the base of burned trees.[156] CDFW's census instructions involve walking parallel transects to systematically search the entire census area.

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[150] PSA, p. 5.2-24.
[151] *Id.*
[152] PSA, p. 5.2-60.
[153] Cashen Comments, pp. 8-11.
[154] Cashen Comments, p. 9.
[155] *Id.*
[156] *Id.*

Third, as Mr. Cashen documents in his comments, the maps provided in the census report omits numerous Joshua trees that occur in the verification census area.[157]

Fourth, of the accessible portions of the gen-tie alignments, census data were limited to areas within 50-feet of the gen-tie line. However, substantial portions of many of the proposed pull and tensioning sites (each approximately 100 feet by 300 feet) are located outside of this 50-foot census area. As Mr. Cashen documents, some of these pull and tensioning sites contain Joshua trees omitted from the census report.[158]

Finally, Mr. Cashen documents Joshua trees within the gen-tie line survey area (i.e., within 50 feet of the gen-tie line), which are not mapped or included in the census.[159]

For these reasons, the western Joshua tree data provided by the Applicant and incorporated into the PSA do not provide an accurate census of the number of trees that could be directly or indirectly impacted by the Project. The PSA should be revised and recirculated to accurately characterize the existing environmental setting with respect to western Joshua trees to ensure a legally adequate assessment of the Project's impacts.

3. The PSA Fails to Adequately Analyze the Existing Baseline for Swainson's Hawk

The PSA fails to adequately analyze the existing environmental setting with respect to Swainson's hawk, a state-listed threatened species. The PSA characterizes the Applicant's Swainson's hawk surveys as "generally consistent with Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties."[160] As explained by Mr. Cashen, this statement is misleading for the following reasons.

First, CEC and CDFW survey protocols state that a qualified raptor biologist should conduct surveys in a manner that maximizes the potential to observe adult Swanson's hawks and nests/chicks via visual and audible cues within a five-mile radius of the project.[161] The surveys conducted by Applicant's consultant, however,

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[157] *Id.,* pp. 9-10.
[158] *Id.*
[159] *Id.*
[160] PSA, p. 5.2-64.
[161] Cashen Comments, p. 11.

were limited to the Project site plus a 0.5 mile buffer.[162] CEC's and CDFW's mitigation guidelines demonstrate the need to conduct surveys within five miles of a project, as they identify the need for compensatory mitigation if a project would impact foraging habitat within a five-mile radius of an active Swainson's hawk nest.[163]

Second, the Applicant reported that the Swainson's hawk surveys were conducted by driving roads within the Project site and 0.5-mile buffer,[164] and provided maps identifying the roads driven for the surveys.[165] These maps, however, indicate "roads" that do not exist, that go through existing solar arrays, and that cross private property with no right of access.[166]

These issues provide strong evidence that the Applicant's Swainson's hawk surveys were far less extensive than suggested, did not cover all areas that could contain nest sites, and were not sufficient to conclude absence of Swainson's hawk nests within the Project site and 0.5-mile buffer. This is important because the CEC and CDFW have determined that Swainson's hawk nests require a 0.5-mile no-disturbance buffer to prevent nest abandonment or forced fledging.[167] As Mr. Cashen documents, if the 0.5-mile buffer cannot feasibly be implemented, take authorization may be necessary to comply with the California Endangered Species Act ("CESA").[168] Furthermore, if there is insufficient evidence to conclude absence of nests within 0.5 miles of the Project site, the Applicant must assume presence and acquire an Incidental Take Permit.[169] Although there is insufficient evidence to conclude absence of nests within 0.5 miles of the Project site, and although it is unlikely that a 0.5-mile no-disturbance buffer would be feasible for the Project (given the construction schedule), the PSA does not require the Applicant to apply for take authorization. As a result, the PSA does not ensure compliance with CESA.

There is substantial evidence that the PSA lacks an adequate description of the existing environmental setting with respect to Swainson's hawk, which

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[162] PSA, Table 5.2-7 at p. 5.2-62.
[163] Cashen Comment, pp. 11-12.
[164] TN 258312, Willow Rock Swainson's Hawk Survey 2024 Addendum, p. 3.
[165] TN 259338, Responses to CURE Data Request Set 1.
[166] Cashen Comments, p. 12.
[167] California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Energy Commission and Department of Fish and Game. p. 7,
[168] Kern County Planning and Natural Resources Department. 2021 Jun. Final Environmental Impact Report for the Raceway 2.0 Solar Project. California Department of Fish and Wildlife Comment 2-N.
[169] *See* California Department of Fish and Wildlife. 2022 Aug 31. Letter to L. Payne, CEC, regarding Applicant's Response to CEC Staff's Issues Identification Report and Proposed Schedule (TN 245782). p. 12.

precludes an adequate analysis of the Project's impacts to this threatened species. The PSA must be revised and recirculated with an accurate, CEQA-compliant discussion of the environmental setting.

B. The PSA Fails to Adequately Analyze the Project's Impacts to Biological Resources

1. The PSA Fails to Adequately Analyze the Project's Impacts to Special Status Plants

The PSA concludes that Project impacts to special status plants will be less than significant with mitigation. The PSA cites CEQA Guidelines in adopting a significance threshold for such impacts: an impact to biological resources would be considered significant if construction or operation of the Project would result in the potential for loss or "take" of any special status species.[170] However, in analyzing impacts to special status plants sagebrush loeflingia and alkali mariposa lily, the PSA adopts a different significance threshold, one that is unsupported by substantial evidence. "Direct and indirect impacts to plants would be considered significant without mitigation if project activities result in the loss of **more than ten percent** of the known individuals within an occurrence of a CRPR List 1B or 2 species, such as sagebrush loeflingia and alkali mariposa lily. [emphasis added]"[171]

The PSA's analysis of Project impacts to sagebrush loeflingia and alkali mariposa lily is flawed for two reasons. First, the 10 percent threshold used to determine significance of impacts to CRPR List 1B or 2 species is not supported by substantial evidence and is unjustified, and conflicts with the thresholds of significance established in the PSA.[172] As noted above, the PSA earlier adopted a significance threshold that considered whether the Project would cause loss or "take" of *any* special-status species—not whether the Project would cause the loss or "take" of more than 10 percent of the known individual plants.

Second, COC BIO-12 explains that for the purposes of determining whether compensatory mitigation would be required, "[m]easurement of percent avoidance shall be based on population for perennials and on habitat for annuals (habitat containing the species' microhabitat preferences, such as 'soil types and moist depressions')."[173] BIO-12 further explains that the local population shall be measured by the number of individuals occurring on the Project site or all plants within a 0.25-mile buffer. Therefore, the CEC's ability to effectively implement BIO-12 is dependent on accurate information on the population size of impacted

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[170] PSA at p. 5.2-140.
[171] PSA, p. 5.2-153.
[172] PSA, pp. 5.2-140 and -141.
[173] PSA, p. 5.2-243.

perennials (e.g., alkali mariposa lily), and habitat for annuals (e.g., sagebrush loeflingia). This information is not provided in the PSA,[174] nor does BIO-12 incorporate a mechanism for collecting the information prior to impacts to special-status plants.

The PSA determined that impacts to special-status plants would occur if the Project alters local soil conditions and existing hydrologic properties.[175] Sagebrush loeflingia occurs in and adjacent to the P1 site.[176] The Project involves removing vegetation from the P1 site.[177] The P1 site would then be used for construction laydown, storage, and possibly construction of an architectural berm. At a minimum, the Project would alter soil conditions and existing hydrologic properties at the P1 site.[178] If the architectural berm is constructed, impacts to hydrology would extend offsite because offsite flows would be diverted via proposed drainage channels, and rainwater that falls on the north and west sides of the architectural berm would flow to proposed drainage channels along the north and west sides of the berm.[179] Construction activities at the P1 site would have the following impacts on sagebrush loeflingia.

First, the portion of the sagebrush loeflingia population within the P1 site would be directly impacted by vegetation removal and other construction activities. Because the Applicant has not identified the number of sagebrush loeflingia that occur within the P1 site, this precludes the ability to determine whether direct impacts to sagebrush loeflingia at the P1 site would trigger the compensatory mitigation described under COC BIO-12 (requiring compensatory mitigation if more than 10 percent of the population is subject to loss from Project disturbance).

Second, almost all of the remaining plants in the sagebrush loeflingia population occur along the western border of the P1 site.[180] These plants would be subject to changes in hydrology, dust, and other indirect impacts. Due to the proximity of the plants to the P1 site, it is unlikely that the population will remain viable, but, as Mr. Cashen explains, it could take several years for the population to become completely extirpated. [181]

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[174] The PSA (p. 5.2-55) states that a small population of approximately 20 alkali mariposa lily individuals was observed along Rosamond Boulevard, which is inconsistent with the 82 mariposa lilies reported on the Applicant's CNDDB form. Therefore, it is unclear which number would be used to establish the population size.
[175] PSA, p. 5.2-153.
[176] Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, Figure DR82-A.
[177] SAFC ,Vol I, Part A (TN 254806), p. 5.2-41.
[178] *Ibid,* Part B (TN 254805), p. 5.11-10.
[179] *Ibid*, p. 5.15-16.
[180] Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, Figure DR82-A.
[181] Cashen Comments, p. 18.

A critical flaw with the PSA's mitigation strategy is that although the PSA recognizes that the Project is likely to have significant indirect impacts on special-status plants, there is no mechanism for mitigating those impacts should they cause loss or "take" of the plant (or its habitat). For example, although sagebrush loeflingia could be exposed to long-term indirect impacts associated with the architectural berm, COC BIO-12 (rare plant mitigation) does not require the Applicant to monitor the fate of the plants to determine whether additional compensatory mitigation is necessary, nor does BIO-12 incorporate a mechanism that would enable the CEC to impose additional mitigation requirements should the sagebrush loeflingia plants succumb to indirect impacts. As a result, BIO-12 does not ensure impacts to special-status plants would be reduced to less than significant levels.

2. The PSA Fails to Adequately Analyze Impacts to Western Joshua Tree

The Project will result in significant direct and indirect impacts to western Joshua trees, but the PSA concludes that, with mitigation, impacts from Project construction would be "fully mitigated" and impacts from operations would be less than significant. [182] Mr. Cashen's comments provide substantial evidence demonstrating that these conclusions are unsupported.

The western Joshua tree is a candidate species under the California Endangered Species Act. While the CESA listing process is pending, western Joshua trees are protected by the Western Joshua Tree Conservation Act ("WJTCA"), which was enacted in July 2023 and prohibits the take of any western Joshua tree in California unless otherwise authorized by CDFW.[183] The PSA concludes that Project construction would result in the permanent removal (i.e., destruction) and relocation of western Joshua trees and has the potential to directly and indirectly impact trees that are avoided within the Project area or occur within adjacent habitats.[184] The PSA purports to comply with the WJTCA by including measures in COC BIO-12 to "fully off-set impacts to the species."[185] The PSA's analysis and conclusions with respect to Project impacts to western Joshua trees are not supported by substantial evidence, because the PSA fails to disclose the full extent of impacts to the species, and because the measures in COC BIO-12 do not comply with the requirements of the WJTCA.

In analyzing Project impacts to western Joshua trees, the PSA states "[d]irects impacts [sic] to western Joshua tree would occur from permanent removal or relocation of individual trees. Under Option 1 – Without Berm, the applicant has

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[182] PSA at pp. 5.2-157—5.2-158.
[183] California Fish and Game Code § 1927 *et seq.*
[184] PSA at p. 5.2-157.
[185] *Id.*

determined that a maximum of 1,158 western Joshua trees would require permanent removal and 249 trees would be relocated. Under Option 2 - With Berm, the applicant has identified a maximum of 1,625 trees for permanent removal and 266 for relocation."[186] However, as Mr. Cashen explains, these numbers only account for the Joshua trees that would be directly impacted at the WRESC, P1 and P2 sites.[187] The PSA fails to identify the number of Joshua trees that would need to be removed or relocated for construction of the Project's 19-mile gen-tie line and associated access roads.

The PSA also includes unexplained discrepancies with respect to the number of Joshua trees that would be impacted by the Project. The PSA reports that 1,491 Joshua trees occur at the WRESC site, and that 501 and 844 trees occur at the P1 and P2 sites, respectively, for a total of 2,836 Joshua trees. Under Project Option 2 (with berm), all 2,836 Joshua trees would be directly impacted during construction.[188] However, according to the PSA, only 1,891 trees would be directly impacted (i.e., require removal or relocation) under Project Option 2.[189] This discrepancy is unexplained, and suggests errors in the census data relied on for the PSA's impact assessment. The CEC cannot make a determination on whether the Project's impacts to western Joshua trees will be fully mitigated as required by the WJTCA without first fully assessing and disclosing the total number of western Joshua trees that would be taken by the Project.

The PSA also lacks substantial evidence to support the conclusion that implementation of mitigation measures in COC BIO-12 will mitigate impacts to western Joshua trees to the greatest extent feasible. COC BIO-12 contains various mitigation measures addressing impacts to special-status plants, and includes measure 10 (Western Joshua Tree Relocation Plan and Conservation Fund Fees).[190] This measure includes certain reporting requirements for relocation of Joshua trees and methodology for calculating mitigation fees for the impacted trees. It also includes the following statement "At the completion of relocation, the project owner shall conduct annual monitoring of each relocated tree for a period of 3 years. An annual status report shall be submitted to the CPM and CDFW by January 31 of the following year. Each report shall include a health assessment of each relocated tree (with unique identifiers), a description of current habitat conditions (including any new disturbances), and representative photos and maps."[191]

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[186] PSA, p. 5.2-155.
[187] Cashen Comments at pp. 19-20.
[188] *Id.* at p. 19.
[189] PSA at p. 5.2-155.
[190] PSA at p. 5.2-247.
[191] PSA at 5.2-249.

The PSA lacks any further discussion or explanation as to how these monitoring measures are expected to mitigate the Project's impacts to western Joshua trees. The WJTCA requires that, if relocation of western Joshua trees is required, "the permittee shall implement measures to assist the survival of relocated trees, and to comply with any other reasonable measures required by the department to facilitate the successful relocation and survival of the western Joshua trees."[192] Such measures *shall include, but are not limited to, all of the following:* (i) a requirement that the relocated western Joshua tree is placed in a location and with proper orientation to improve its survival; (ii) a requirement that western Joshua trees are relocated at a time that maximizes their survival when feasible; and (iii) a requirement that a desert native plant specialist be onsite to oversee relocation.[193]

The COC BIO-12 measures relating to Joshua trees lack the measures required by the WJTCA to assist the successful relocation and survival of the relocated trees. While the PSA calls for the annual monitoring and reporting on the relocated trees, it fails to specify any further actions that may be required depending on monitoring results. In other words, COC BIO-12 lacks any performance standards by which the adequacy of the mitigation can be assessed. For these reasons, the mitigation measures relating to western Joshua trees are impermissibly deferred under CEQA, and the PSA lacks substantial evidence to support the conclusion that Project impacts to western Joshua trees will be adequately mitigated to less than significant levels.

3. The PSA Fails to Adequately Analyze Impacts to Special-Status Birds

The PSA states as follows with respect to Project impacts on special-status birds: "[a]ny project related impact that results in the **loss of nesting habitat**, disturbance of breeding behavior, destruction of nests or eggs, exposure to herbicides or other hazardous materials, and mortality or injury to individual birds would be considered a significant impact. [emphasis added]"[194] The PSA includes mitigation for direct impacts to nesting birds (COC BIO-17), but lacks any mitigation for the loss of nesting habitat. As Mr. Cashen explains, the Project will result in loss of nesting habitat for several special-status bird species (e.g., Swainson's hawk, Le Conte's thrasher, and loggerhead shrike).[195] While the PSA includes mitigation requiring habitat compensation for loss of burrowing owl (COC BIO-14), it has no provisions to compensate for habitat loss to any other special-status birds. As a result, the loss of nesting habitat for special-status birds remains potentially significant and unmitigated.

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[192] California Fish and Game Code § 1927.3(a)(4)(A).
[193] *Id.*
[194] PSA, 5.2-178.
[195] Cashen Comments at p. 21.

4. The PSA Fails to Adequately Analyze Impacts to Swainson's Hawk

Swainson's hawk is listed as a threatened species under CESA. Mr. Cashen cites recent literature describing the Swainson's hawk nesting population in the Antelope Valley (which includes the Project site).[196] This literature finds that the population is under increasing pressure from the conversion of nesting and foraging habitat to development, and that these changes are incompatible with continued Swainson's hawk nesting and foraging.[197] The PSA states as follows with respect to the Project's impacts on this threatened species:

> "Construction of the WRESC would permanently remove between 88.8 and 122.2 acres of native and non-native vegetation communities and other landforms and between 163.5 and 117.3 acres of temporary impacts depending on which Option 2 - With Berm [*sic*] is constructed. Some of this habitat could be used by Swainson's hawks for foraging, although the proximity to the Highway may limit foraging to some degree. This species is currently occupying trees along rural roads in the Antelope Valley and may tolerate some level of disturbance."[198]

As an initial matter, it is misleading to state that the Project site *could* be used by Swainson's hawk for foraging. The Applicant's Biological Resource Assessment report states that Swainson's hawk "were observed foraging on site," which definitively establishes that the Project site includes foraging habitat.[199]

The PSA determined that the permanent loss of Swainson's hawk foraging habitat would be considered a significant impact.[200] The PSA further determined that COC BIO-14 would reduce the impact to a less than significant level.[201] COC BIO-14 requires that the Applicant acquire lands to replace habitat loss due to Project impacts. The PSA's determination that this mitigation measure will reduce the impacts of the loss of Swainson's hawk habitat is not supported for the reasons discussed below.

First, BIO-14 is directed solely at offsetting impacts to habitat for the Crotch's bumble bee and burrowing owl. There is no requirement that habitat management lands provide habitat for any other species, including Swainson's

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[196] *Id.*
[197] *Id.*
[198] PSA at p. 5.2-187.
[199] TN 254816 WRESC Biological Resource Assessment Report, Table 10.
[200] PSA, p. 5.2-187.
[201] *Id.*

hawk. There is no evidence that habitat management lands acquired to mitigate for loss of Crotch's bumble bee and burrowing owl habitat will be suitable foraging habitat for Swainson's hawk.

Second, there is no requirement that lands acquired for habitat compensation under BIO-14 be located in the Antelope Valley near Swainson's hawk nesting territories. As discussed by Mr. Cashen, the Antelope Valley Swainson's hawk population is geographically isolated from other breeding populations.[202] Accordingly, CEC and CDFW mitigation guidelines for renewable energy projects in the Antelope Valley call for mitigating loss of Swainson's hawk foraging habitat by providing compensatory foraging habitat within the Antelope Valley.[203]

The PSA therefore fails to adequately analyze and mitigate Project impacts to threatened Swainson's hawk, and must be revised to correct these errors.

C. The PSA Fails to Adequately Analyze Cumulative Biological Resources Impacts

The PSA fails to adequately analyze cumulative impacts to biological resources associated with development in the region. The PSA's conclusion that "with the implementation of staff's recommended conditions of certification BIO-1 through BIO-24 the project would not contribute to cumulatively considerable impacts from the permanent or temporary conversion of habitat or direct and indirect impacts to plants or wildlife"[204] is not supported by substantial evidence. Substantial evidence in Mr. Cashen's expert comments demonstrate that the PSA lacks support for its conclusions regarding the Project's cumulative impacts on habitat and rare plants.

1. The PSA Fails to Adequately Analyze Cumulatively Considerable Impacts on Habitat

The PSA determined that the Project would not contribute to cumulatively considerable impacts from the permanent or temporary conversion of habitat.[205] The PSA provides the following rationale for this determination:

1) The loss of habitat from Project construction would be mitigated through implementation of BIO-14 (Habitat Management Land Acquisition

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[202] Cashen Comments at p. 22.
[203] *Id.*
[204] PSA at p. 5.2-208.
[205] PSA at p. 5.2-206.

or Crotch's Bumble Bee and Western Burrowing Owl), which would fully off-set the impacts and conserve important habitat in the region.[206]

2) Temporary impacts to scrub communities would be off-set through a combination of the land acquisition required under BIO-14 and BIO-8, which requires the basic restoration of long-term temporary work and staging areas to control the spread of invasive weeds.[207]

There are several problems with the PSA's rationale, as explained by Mr. Cashen[208] and summarized below.

First, the PSA's cumulative impacts analysis is limited to the area within 8 miles of the WRESC site. Therefore, mitigation designed to "fully offset" the Project's contribution to cumulative impacts to "important habitat in the region" must be implemented within the same 8 mile radius analyzed for cumulative impacts. The PSA, however, does not establish any geographic limits on the location of the habitat acquisition required under BIO-14. Therefore, if the Applicant acquires habitat management land in San Bernardino County (for example), that land would not mitigate the Project's contribution to cumulative impacts *in the Antelope Valley*.

Second, as discussed above, BIO-14 only requires the Applicant to acquire replacement habitat for the Crotch's bumble bee and burrowing owl. There are no requirements or other assurances that the acquired habitat management lands lands would be reasonably likely to support the other special-status species that would be subject to significant cumulative impacts. The conclusion that this mitigation measure will adequately mitigate cumulative impacts to habitat is not supported by substantial evidence.

Third, the PSA does not establish any restrictions on the habitat types acquired under BIO-14. Therefore, the statement that land acquired under BIO-14 would offset impacts to scrub communities is unfounded.

Fourth, BIO-8 does not offset impacts to scrub communities because there are no requirements that "temporarily" impacted scrub communities be restored. Indeed, BIO-8 explicitly states: "[b]ecause temporary impacts are being considered permanent to offset impacts to listed species the requirements for a successful transition to native scrub communities is not required."[209]

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[206] PSA, p. 5.2-206.
[207] PSA, p. 5.2-206.
[208] Cashen Comments at pp. 23-24.
[209] PSA, p. 5.2-230.

2. The PSA Fails to Adequately Analyze Cumulatively Considerable Impacts to Rare Plants

Following its discussion of cumulative impacts to the western Joshua tree, the PSA states "[i]n addition, the small number of other sensitive plants that would be potentially impacted by the project would be mitigated through seed collection and other measures that would contribute to their preservation in the region. Impacts to special status plants would not be cumulatively considerable."[210]

The PSA's conclusion is unsupported, because none of the proposed COCs require seed collection or other measures that would contribute to the impacted plant's preservation in the region. While BIO-12 requires compensatory mitigation if more than 10 percent of a CRPR 1 or 2 ranked plant occurrence is subject to loss from Project impacts, BIO-12 does not require acquisition of compensation land *in the region,* nor does it require that compensation land provide habitat for the specific plant(s) impacted by the Project. Moreover, if each Project in the region is allowed to eliminate up to 10 percent of a plant occurrence (defined in the PSA as all plants within a 0.25-mile buffer, these incremental losses could easily become cumulatively significant.

For the reasons stated herein, the Project will result in significant impacts to biological resources that must be adequately disclosed, analyzed, and mitigated in a revised PSA. An agency must mitigate "all significant environmental impacts to the greatest extent feasible."[211] Mitigation of impacts to the fullest extent feasible requires an agency to accurately quantify the severity of Project impacts, and because the PSA's inadequate analyses underestimate the severity of the Project's impacts, CEC has failed to comply with CEQA and must revise and recirculate the PSA.

NOISE

The PSA concludes that the Project's construction and operational noise impacts will be less than significant with mitigation incorporated.[212] However, as explained in the comments of noise expert Deborah Jue and summarized below, these conclusions are not supported by substantial evidence.

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[210] PSA at pp. 5.2-206—5.2-207.
[211] 14 Cal. Code Regs. §§ 15090, 15091.
[212] PSA at pp. 5.9-6—5.9-8.

A. The PSA's Operational Noise Analysis is Not Supported by Substantial Evidence

The PSA's operational noise analysis relies on the technical noise studies and analysis presented by the Applicant in the SAFC. The PSA's conclusion that the Project's operational noise impacts will be less than significant is not supported by substantial evidence because the PSA misapplies the SAFC noise analysis, fails to disclose a significant noise impact at one of the sensitive receptor locations, and relies on inappropriate ground absorption factors that lead to an underestimation of noise impacts.

In assessing whether the Project's operational noise will have significant impacts, the SAFC includes an analysis that references CEC's previous adoption of a significance threshold comparing project noise to pre-existing background noise. That threshold stated that an increase between 5 and 10 dBA should be considered adverse, but may be either significant or insignificant depending on the particular circumstances of the case.[213] In environmental noise analysis, background noise is characterized with measurements of the L_{90}, or noise level exceeded 90% of the time.[214] Outdoor noise sources which are continuous in nature will strongly affect the L_{90}; continuous sources include turbines, compressors, generators, heat exchangers, pumps, transformers and the like.[215] These are the types of noise sources that are associated with the Project, and the continuous noise generated by Project operations will therefore directly increase background noise in the community.

The PSA's analysis lacks any reference to *background* noise in the Project area, as measured by L_{90}, and instead compares Project noise to *ambient* noise. Ambient noise is different than background noise, and is measured using a different metric.[216] Ambient noise is the combination of all noises in an environment, including continuous and intermittent noise and is typically measured with the equivalent level, or L_{eq}.[217] The L_{eq} is strongly influenced by high level, short duration noises such as passing vehicles, aircraft overflights, etc.[218] The PSA's analysis comparing Project noise to ambient noise levels does not support the less-than-significant conclusion regarding operation noise impacts because it lacks any analysis of the noise increase relative to background levels (L_{90}).[219]

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[213] Jue Comments at pp. 1-2.
[214] Jue Comments at p. 2.
[215] *Id.*
[216] *Id.* at p. 3.
[217] *Id.*
[218] *Id.*
[219] *Id.*

In addition, while the SAFC noise analysis estimated noise impacts at seven different receptor sites (NS-1 through NS-7), the PSA only reports results at a single receptor (NS-1) in making its significance determination.[220] Receptor NS-1 is the receptor closest to the highway and primary existing noise source.[221] The PSA fails to report results at NSA-7, which is farther away from the highway where background conditions are much quieter. As Ms. Jue explains, at NSA-7 Project operational noise would be 5 dBA higher than background noise levels during daytime hours, and during nighttime hours Project noise would be 9 dBA higher than the background and 5 dBA higher than ambient.[222] Based on the CEC threshold comparing project noise to background noise (cited in the SAFC and discussed above), an increase of 9 dBA higher than background is considered adverse. Ms. Jue opines that because this is an increase in nighttime noise that can interfere with sleep, it should be considered significant under the circumstances.[223]

Ms. Jue identifies another error in the PSA's operational noise analysis, which leads to an underestimation of Project operational noise impacts. The noise model used for the SAFC noise analysis used a factor of 0.5 ground absorption effects, which corresponds to "soft ground" and "boreal forest and soil-covered terrain."[224] Typically, sunbaked and hard-packed ground as in the Project area provide very little ground absorption effect, and the ground absorption factor of 0.5 likely overestimates the absorption effect resulting in an underestimation of Project operational noise.[225]

Finally, Ms. Jue provides substantial evidence that the noise model in the SAFC does not properly account for effects of a thermal inversion.[226] During periods of the year with cold air temperatures near the ground and a warm layer of air sitting above the cool air, a thermal inversion will cause sound to diffract toward the ground instead of dissipating upwards into the sky.[227] A strong inversion can increase sound by 5 to 10 dBA, and this effect can be measured at distances less than 5,000 feet out to several miles.[228] While the SAFC analysis claims the model settings used are sufficient to determine the effects of a moderate inversion, Ms. Jue points out that typical conditions in the Project area are more likely to generate strong inversions.[229] The noise levels reported in the PSA therefore could be 5 to 10 dBA higher during strong inversions.

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[220] PSA at p. 5.9-7.
[221] Jue Comments at p. 3.
[222] Jue Comments at pp. 3-4.
[223] Jue Comments at p. 3.
[224] Jue Comments at p. 4.
[225] *Id.*
[226] *Id.* at p. 6.
[227] *Id.*
[228] *Id.*
[229] *Id.*

For these reasons, the PSA's operational noise analysis is not supported by substantial evidence. Ms. Jue's comments provide substantial evidence that Project operational noise could have significant impacts that are neither analyzed nor disclosed. The PSA's noise analysis must be revised to address these issues and propose all feasible mitigation as appropriate.

B. The PSA's Construction Noise Analysis is Not Supported by Substantial Evidence

The PSA's conclusions regarding the Project's construction noise impacts are not supported by substantial evidence for the following reasons.

First, the PSA uses incorrect baseline conditions when comparing Project construction noise (i.e., blasting noise) to existing conditions. The PSA compares the short term blasting noise of 65 dBA at NSA-1 to the 24-hour day-night metric (L_{dn})[230] instead of the daytime baseline. The blasting noise would be 18 dBA higher than the background 47 dBA L_{90} and 15 dBA higher than the ambient 50 dBA L_{eq}.[231]

Second, the PSA fails to analyze or disclose Project noise and vibration impacts related to construction of the gen-tie line and associated access roads. These activities will involve heavy equipment to install transmission poles, and sections of underground transmission line could require trenching and vibration compaction or horizontal directional drilling, depending on the method selected.[232] Portions of the gen-tie line would be less than 50 feet from homes along Mojave-Tropico Road and within 75 of school buildings for underground option 5.[233] The above ground transmission lines could pass within 100 feet of residences, which could be impacted by construction noise and vibration impacts. The PSA lacks any discussion or analysis of these potential noise and vibration impacts, and must be revised to include such analysis.

CONCLUSION

For the reasons discussed herein, the PSA is inadequate under CEQA. It must be revised to provide legally adequate analysis of, and feasible mitigation for, all the Project's potentially significant impacts. These revisions will necessarily require that the PSA be recirculated for additional public review. Until the PSA

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[230] PSA at p. 5.9-7.
[231] Jue Comments at p. 6.
[232] PSA at p. 3-34.
[233] PSA Figure 1-6 at p. 3-6.

has been revised and recirculated, the Commission may not lawfully approve the Project.

Dated: June 16, 2025

Respectfully submitted,

Original Signed by:

/s/ Richard M. Franco

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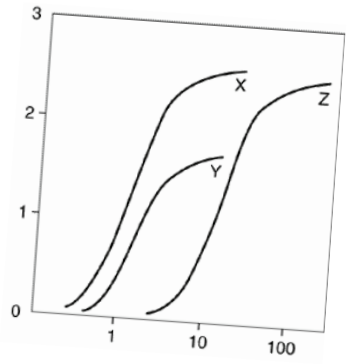
ATTACHMENT A



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June 9, 2025

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Attn: Mr. Richard M. Franco

Subject: Comments On Willow Rock Energy Storage Center Project, Kern County, CA. California Energy Commission Number: CEC-700-2025-003-PSA Docket Number 21-AFC-02

At the request of Adams Broadwell Joseph & Cardozo (ABJC), Clark and Associates (Clark) reviewed materials related to the Preliminary Staff Assessment (for the above-referenced Project.

Clark's review of the materials in no way constitutes a validation of the conclusions or materials contained within the plan. If we do not comment on a specific item this does not constitute acceptance of the item.

Project Description:

According to the Preliminary Staff Assessment[1] (PSA), the Willow Rock Energy Storage Center (WRESC) would be a nominal 520-megawatt (MW) gross (500 MW net) and 4,160 megawatt-hour (MWh) gross (4,000 MWh net) facility using Hydrostor, Inc.'s (Hydrostor's) proprietary, advanced compressed air energy storage (A-CAES) technology. The overall facility would consist of four nominal 130 MW gross power turbine trains, outputting a total of 500 MW net at the point of interconnection. The trains would contain electric motor-driven air compressors, heat exchangers, air turbine generators, air exhaust stacks, and ancillary equipment. The trains would share a common set of thermal storage tanks (hot and cold

[1] CEC. 2025. Willow Rock Energy Storage Center Preliminary Staff Assessment. Dated April, 2025. Pg. 1-2

water), as well as the air storage cavern. Energy stored at the WRESC would be delivered to Southern California Edison's (SCE's) Whirlwind Substation located southwest of the WRESC at the intersection of 170th Street W and Rosamond Boulevard, via a new approximately 19-mile 230-kilovolt (kV) generation-tie (gen-tie) line. The WRESC would be capable of operating on a 24- hour basis, 365 days a year with an approximately 50-year lifespan.

The Willow Rock Energy Storage Center (WRESC, or Willow Rock) would be on approximately 88.6 acres of private land immediately north of Dawn Road and between State Route (SR) 14 and Sierra Highway within unincorporated, southeastern Kern County, California.

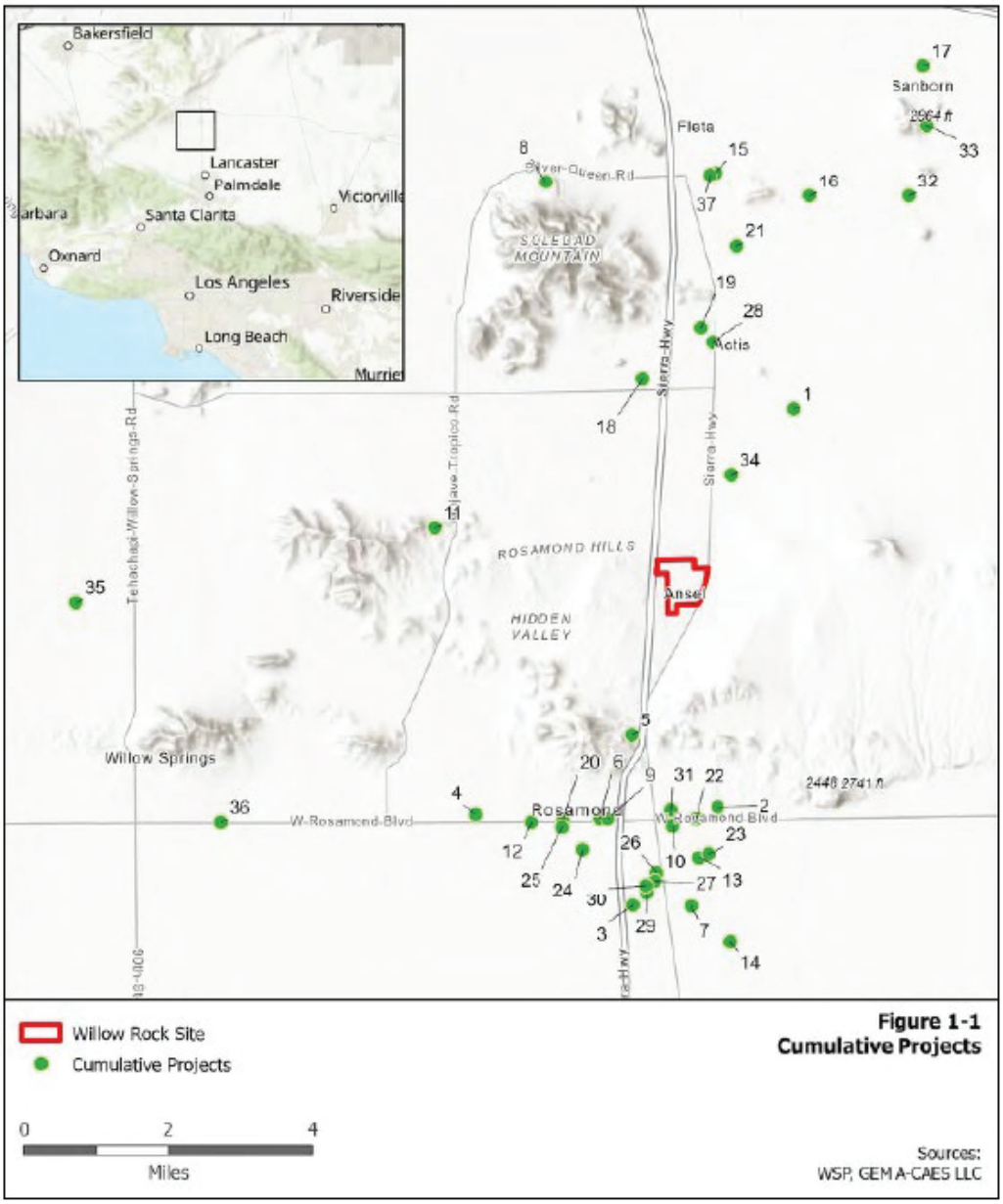


Figure 1: Regional Location Map

The proposed project would include the following key features:

- A-CAES Energy Storage Process, Cooling Systems and Electric Transmission
  - Eight electric-motor-driven air compressors configured in four trains, totaling nominally 500 MW net
  - Four nominally 130 MW air-powered turbine generators with 100-foot-tall air vent stacks
  - Heat extraction and recovery main process heat exchangers
  - Thermal storage system using water, including up to six, 87.5-foot-diameter by 100-foot-tall (maximum) hot-water spherical storage tanks and two 150-footdiameter, 60-foot-tall cold-water storage tanks
  - Cooling system: three air-cooled heat exchangers with evaporative mist system using excess internally produced process water
  - One approximately 21.5-acre, 600-acre-foot capacity hydrostatically compensating surface reservoir with liner and interlocking shape floating cover
  - Aboveground piping pipe racks and filter houses
  - Underground compressed air storage cavern (approximately 900,000 cubic yards capacity)
  - Interconnecting conduits for movement of compressed air to and from the cavern
  - Potential permanent aboveground architectural berm for onsite re-use of excavated cavern rock1
  - Onsite 230 kV substation with oil-filled transformers with 230/13.8 kV rating
  - One approximately 19-mile-long 230 kV single-circuit double-bundle conductor gen-tie line interconnecting to the SCE Whirlwind Substation with a preferred gen-tie route and route options
  - Approximately 186 transmission poles (approximately 0.2 acres permanent disturbance)
- Operation and Maintenance Facilities, Ancillary Support Systems, and Other Features
  - Site stormwater drainage system and stormwater percolation/evaporation ponds
  - Water supply connection to an existing Antelope Valley East Kern Water Agency's supply pipeline adjacent to Sierra Highway east of the WRESC Site
  - Fire detection and fire monitoring systems
  - Firewater tank and fire suppression system
  - Acoustic enclosures for Turbomachinery

    - Weather Enclosures for Motor Control Center
    - One diesel-fired 345-kilowatt (kW) (460 horsepower) emergency fire pump
    - Three diesel-fired up to 2.5 MW, 4.16 kV emergency backup power supply engines to maintain critical loads in the event of a loss of power
    - One combined office, control room, and maintenance building
    - Employee and visitor parking area with electric vehicle charging ports and landscaping
    - Primary and secondary entrances with security access gates and site perimeter fencing
    - Permanent plant access roads within the WRESC Site
    - Extension/upgrades to Dawn Road between the SR 14 interchange and Sierra Highway
- Temporary Construction Facilities
    - Up to approximately 122.2-acre total laydown areas including cavern construction laydown area, construction phase earthwork areas, cavern rock temporary re-use areas, cavern rock temporary backup re-use areas, and parking areas located on adjacent and nearby parcels
    - Rock crushing facility and concrete batch plant to support cavern construction and excavated rock management (acreage included in total temporary disturbance)
    - Two temporary entrances for construction; the Dawn Road construction entrance may be converted to permanent
    - An estimated up to 1.5 miles of unpaved temporary access road along the gen-tie line corridor as needed (approximately 3.7 acres)
    - Approximately 35 conductor pull and tensioning sites (approximately 21.5 acres total)
    - Approximately 75- by 75-foot temporary disturbance for placement of each transmission pole (approximately 23.6 acres total)

According to the PSA, the WRESC would not require the combustion of fossil fuel and would not produce combustion-related air emissions during normal operation. The PSA notes that "The project would include three emergency diesel-fired engines to maintain critical loads in the event of a loss of power and one diesel-fired fire pump engine. These engines are expected to operate less than 50 hours per year for reliability testing and maintenance and would not operate concurrently during testing. The diesel-fired engines would operate in an emergency for other critical facility loads when electric power is not available. A separate diesel-engine-driven fire pump would provide water in the event of an

emergency. This emergency backup equipment does not need to operate for the WRESC to function during normal operation."

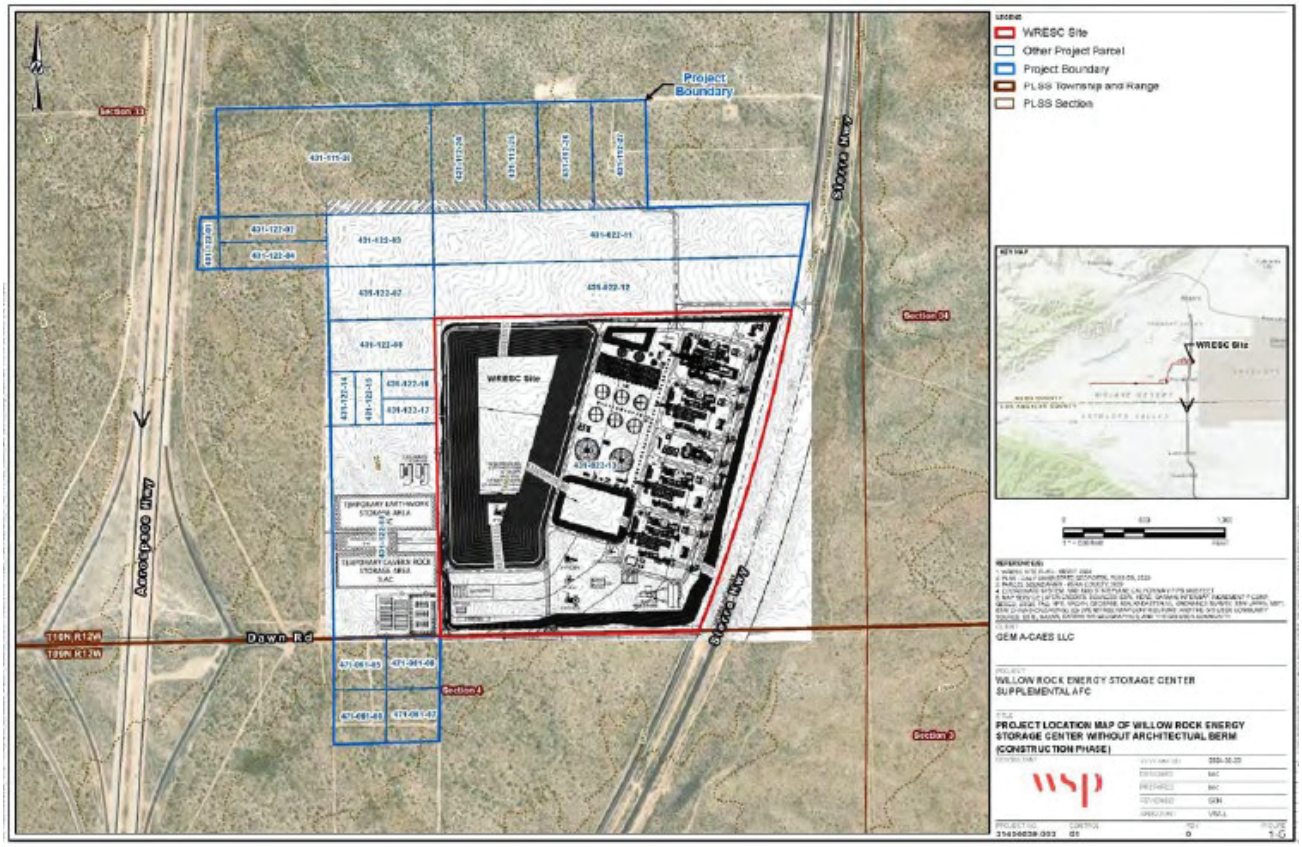


Figure 2: WRESC Project

The system stores compressed air in a purpose-built underground storage cavern, analogous to those used worldwide for hydrocarbon storage. The storage cavern is filled with water through a hydraulic conduit from a water storage compensation reservoir at the ground surface level. The weight of the water in this compensation reservoir maintains a near-constant air pressure in the cavern throughout both the charging and discharging cycles, supporting efficient operation, and significantly reducing the cavern volume requirements.

The water-based thermal management system captures the heat developed during air compression, stores it, and re-uses it when generating electricity, making the process nearly adiabatic. When the Hydrostor A-CAES system is charging (known as the "charge cycle"), off-peak energy or surplus electricity (such as excess solar that might otherwise be curtailed when production exceeds demand) from the grid is used to drive air compressors, converting the electrical energy into potential energy in the compressed air and heat energy stored by the thermal energy management system. At

multiple points in the compression process, the heat generated during air compression is transferred to boiler-grade water as the only thermal water by a set of heat exchangers and is stored separately for later use during the discharge cycle.

The air stream exits the compression process at the same pressure as that maintained in the air storage cavern which is governed by the vertical distance between the cavern and the connected hydrostatic compensation reservoir located at the surface. As air is charged into the storage cavern, water is displaced up the hydraulic conduit and into the surface reservoir. This maintains near-constant air pressure within the cavern and stores substantial potential energy in the elevated water. Once in the cavern, the air can be stored until electricity is required.

To generate electricity (known as the "discharge cycle"), compressed air is discharged from the cavern, which allows the compensation water to flow back into the cavern. Similar to the charge cycle, the compensation water from the reservoir maintains near constant air pressure in the cavern during discharging. The cool high-pressure air exiting the cavern is reheated using the heat stored by the thermal management system and the same set of heat exchangers that were initially used to extract it. The reheated compressed air is then used to drive air- expansion turbine generators, which efficiently convert the stored potential energy back into electricity for the grid.

Based on 95 percent availability, the facility would be designed to operate:

- Up to 13.5 hours per day and 4,960 hours per year in charging mode at a total capacity of 500 MW (plus 213 hours at 75 percent or less).
- Up to eight hours per day and 2,976 hours per year in discharging mode at a total capacity of 500 MW (plus 128 hours at 75 percent or less).
- A minimum of 372 hours in standby mode.

Air at atmospheric pressure and ambient temperature is compressed to cavern storage pressure. The cavern storage pressure is expected to be 870 to 1,100 pounds per square inch gauge (psig) across three sequential pressure sections of compression, low pressure, intermediate pressure, and high pressure (LP, IP, and HP, respectively), to allow storage in an underground hydrostatically compensated rock cavern with a floor depth of approximately 2,000 to 2,500 feet below ground surface (bgs).

As the compressed air enters the storage cavern, the air pressure would overcome the hydrostatic head of the compensation water system, forcing an equivalent volume of water out of the

cavern and up the compensation shaft (water conduit), increasing the water level of the surface reservoir.

The hot air exiting each section of compression is cooled using boiler-grade water in the LP, IP, and HP heat exchangers. The water exits each heat exchanger and combines into a common stream. The heated water (water) flows to the hot-water spherical tanks, where it is stored at its vapor pressure to avoid vaporization. This is achieved through a system of self-pressurization whereby water vapor generated inside the tank acts as the head gas to maintain positive pressure.

An approximately 600-acre-foot surface reservoir would be excavated and constructed predominantly in cut (below finished grade) using earthen berms approximately 6 feet high. The reservoir would cover a surface area of approximately 21.5 acres and have an average depth of approximately 45 feet. The berms would be constructed from a combination of excavated soil and excavated rock from underground storage cavern construction. Each berm would have an approximate height of up to 6 feet from the exterior toe (native soil) to the berm's top. The water level in the reservoir would fluctuate to maintain constant underground air storage pressure and be designed to operate with a minimum freeboard of approximately 4 feet at full state of charge. The surface reservoir would be equipped with an engineered liner on the bottom (to prevent percolation and possible comingling with groundwater) and a floating cover consisting of interlocking shapes to minimize evaporative water loss.

The storage cavern would be constructed in the bedrock below the WRESC site targeting a depth of approximately 2,000 to 2,500 feet bgs.

TABLE 3-2 CAVERN DESIGN

Design Element	Value
Depth	Approximately 2,000 to 2,500 feet bgs
Pressure	870 to 1,100 psig
Volume	Approximately 900,000 cubic yards

bgs = below ground surface; psig = pounds per square inch gauge

Initial access to the cavern depth ("cavern access") for mobilization of the construction equipment and crews would be accomplished by one of two methods:

1. Construction of a large-diameter conventionally sunk shaft, or
2. Construction of several rotary drilled (blind bore) shafts.

It is expected that the rate of conventional shaft sinking would be around five to eight feet/day, with an overall shaft construction duration of about 12 to 14 months, including pre-grouting of the

overburden. Deeper grouting of the broken bedrock zones would be performed from within the shaft as a step in the sinking cycle if and when necessary.

Once completed, this 24-foot shaft would be sufficient for supporting the hauling, ventilation, and equipment/personnel all in one shaft. One large-diameter blind bore or conventionally sunk shaft, approximately 8 feet (blind bore) to 24 feet (conventional) in diameter, would be constructed for use as water conduit during A-CAES operations.

Up to two blind-bored air shafts, approximately four feet in diameter, would be constructed during the cavern construction for use as air shafts during A-CAES operations. The air shaft would be lined and cemented in place for formation isolation.

The cavern would be constructed by conventional mining methods including drilling and controlled detonation. The cavern layout would be designed to have a room and pillar or parallel gallery layout. The size and shape of excavated openings would depend on the strength of the host rock and would be finalized during detailed engineering.

An estimated 1,400 acre-feet of water (incorporating approximate 20 percent contingency) would be needed throughout the construction and startup period. Most of the water would be used for filling the hydrostatically compensating reservoir. Other uses include supporting construction of the cavern works (shaft drilling and cavern excavation), surface works (hydrotesting and general purpose washdown), and fire system testing.

The AVEK supply water would be used for make-up to the plant water system, fire protection, and general needs such as equipment and surface washdown. The thermal energy storage system and cooling system would be filled with demineralized water during commissioning. A temporary, portable demineralization system would be used to generate water for the first filling and commissioning. Makeup demineralized water would be produced during operations to cover minor losses in the system.

The WRESC would produce excavated material associated with typical mining techniques to create the underground compressed air storage cavern. Excavation waste generally includes soil and rock. The cavern has an equivalent volume of excavated material of approximately 1.3 million cubic yards based on an expected swell by a factor of 1.4.

TABLE 3-3 MAJOR PROJECT MILESTONES				
Target Project Milestones	Begin		Complete	
	Month Number	Calendar Date	Month Number	Calendar Date
Site Preparation & Mobilization	1	Dec-25	3	Feb-26
Grading	2	Jan-26	13	Dec-26
Reservoir Excavation	3	Feb-26	13	Dec-26
Shaft Drilling (Ventilation and Process Connections)	10	Sep-26	35	Oct-28
Access Shaft Excavation	11	Oct-26	23	Oct-27
Topside Equipment Installation	15	Feb-27	45	Aug-29
Transmission Line Construction	24	Nov-27	39	Feb-29
Cavern Construction (and Cavern Rock Crushing and Hauling)	24	Nov-27	47	Oct-29
Topside Equipment Commissioning	40	Mar-29	52	Mar-30
Subsurface Commissioning	47	Oct-29	52	Mar-30
Full Plant Commissioning	52	Mar-30	55	Jun-30
Startup	55	Jun-30	60	Oct-30
Construction Demobilization	59	Sep-30	60	Oct-30
Commercial Operation	60	Oct-30	61	Nov-30

Source: Hydrostor 2025

Based on the information contained in the PSA it is clear that conclusions that the construction and operational phases of the Project will have no significant adverse impacts on the environment are not warranted. That conclusion is not born out in the data provided in the PSA.

Specific Comments

1. The PSA Fails To Adequately Address Valley Fever Risks From Particulate Matter Released During Project Construction.

The PSA fails to adequately address the known presence and significant risk of *Coccidiodes Immitis* (Valley Fever fungus) in Southern California, and specifically in southeastern Kern County. Kern County has 5 distinct regions, the Valley Central area, the Valley North area, the Valley West area, the Mountain area, and the Desert area. The Project Site is located in the southeastern portion of Kern County in the Desert area.

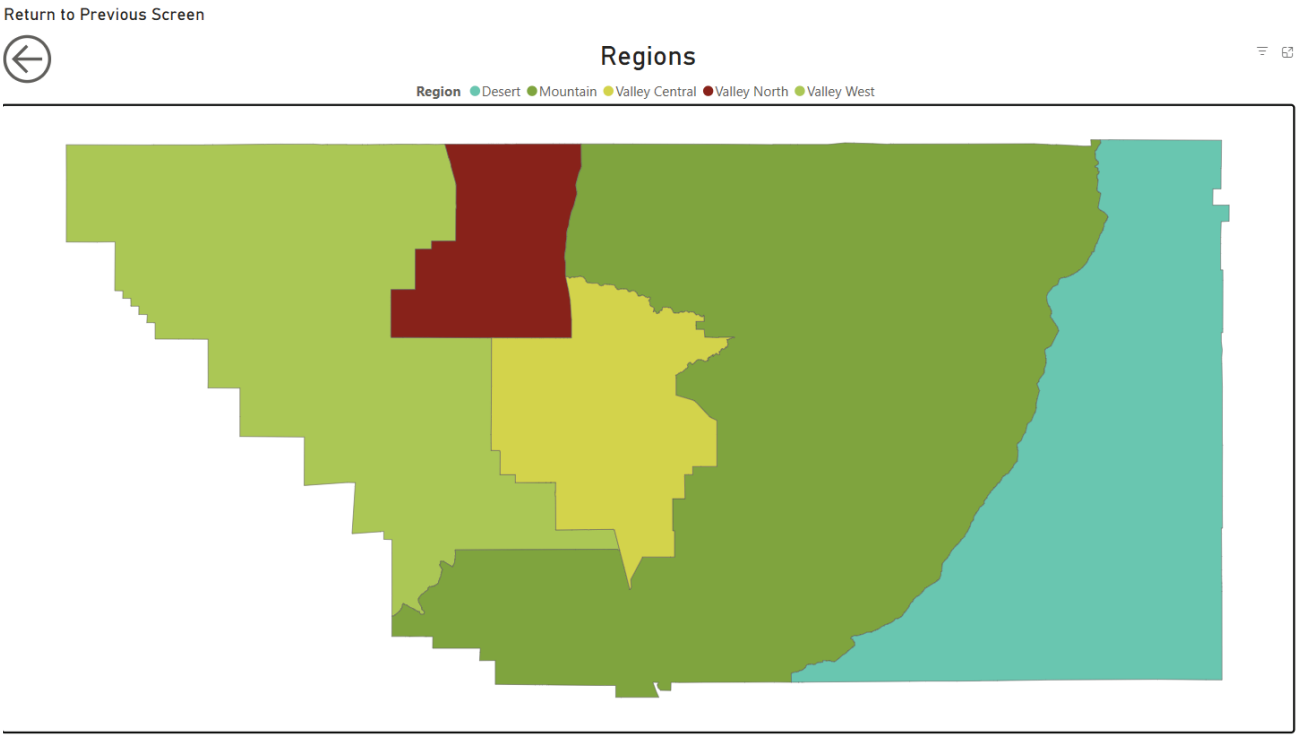


Figure 3: Regional Map From Kern County Department Of Public Health

Dust exposure is a primary risk factor for contracting Valley Fever (via *Coccidiodes imimitis (cocci)* exposure). When soil containing the *cocci* spores are disturbed by construction activities, the fungal spores become airborne, exposing construction workers and other sensitive receptors in the surrounding communities. The potentially exposed population in surrounding areas is much larger than construction workers because the nonselective raising of dust during Project construction will carry the very small spores, 0.002–0.005 millimeters ("mm"), into nonendemic areas, potentially exposing large non-Project-related populations.[2],[3] According to the Mycology Advocacy, Research & Education (MyCARE) website,[4] a collaboration between Valley Fever Institute and the Mycoses Study Group Education & Research Foundation (MSGERC), once the cocci spores are aerosolized (entrailed in the air) they can travel 75 miles or more from where they

[2] Schmelzer and Tabershaw, 1968, p. 110; Pappagianis and Einstein, 1978

[3] Pappagianis and Einstein, 1978, p. 527 ("The northern areas were not directly affected by the ground level windstorm that had struck Kern County but the dust was lifted to several thousand feet elevation and, borne on high currents, the soil and arthrospores along with some moisture were gently deposited on sidewalks and automobiles as 'a mud storm' that vexed the residents of much of California." The storm originating in Kern County, for example, had major impacts in the San Francisco Bay Area and Sacramento).

[4] MyCARE. 2025. https://fightfungus.org/coccidioidomycosis-valley-fever-or-cocci/

became airborne. These very small particles are not controlled by conventional construction dust control mitigation measures. The PSA assumes that meeting Eastern Kern Air Pollution Control District's (EKAPCD's) Rule 403 (Fugitive Dust Control For The Mojave Desert Planning Area) would be sufficient to control the impacts from Valley Fever exposure from the Project Site.

The fungus lives in the top 2 to 12 inches of soil. When soil containing this fungus is disturbed by activities such as digging, vehicles, construction activities, dust storms, or during earthquakes, the fungal spores become airborne. The most at-risk populations are construction and agricultural workers.[5] Here, construction workers are the very population that would be most directly exposed by the Project. A refereed journal article on occupational exposures notes that "[l]abor groups where occupation involves close contact with the soil are at greater risk, especially if the work involves dusty digging operations."[6]

Recent data from the Kern County Public Health Department underscore the severity of this public health issue. Since 2016, the number of cases of Valley Fever in Kern County has increased from 261.58 per 100,000 in 2016 to 436.27 in 2024 (an increase of 166.78%).[7]

[5] Lawrence L. Schmelzer and R. Tabershaw, Exposure Factors in Occupational Coccidioidomycosis, *American Journal of Public Health and the Nation's Health*, v. 58, no. 1, 1968, pp. 107–113, Table 3; available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1.

[6] *Ibid.*, p. 110.

[7] Kern County Public Health. 2025. Valley Fever. It's In The Air. Be Aware. https://www.kernpublichealth.com/healthy-community/illness-disease/valley-fever

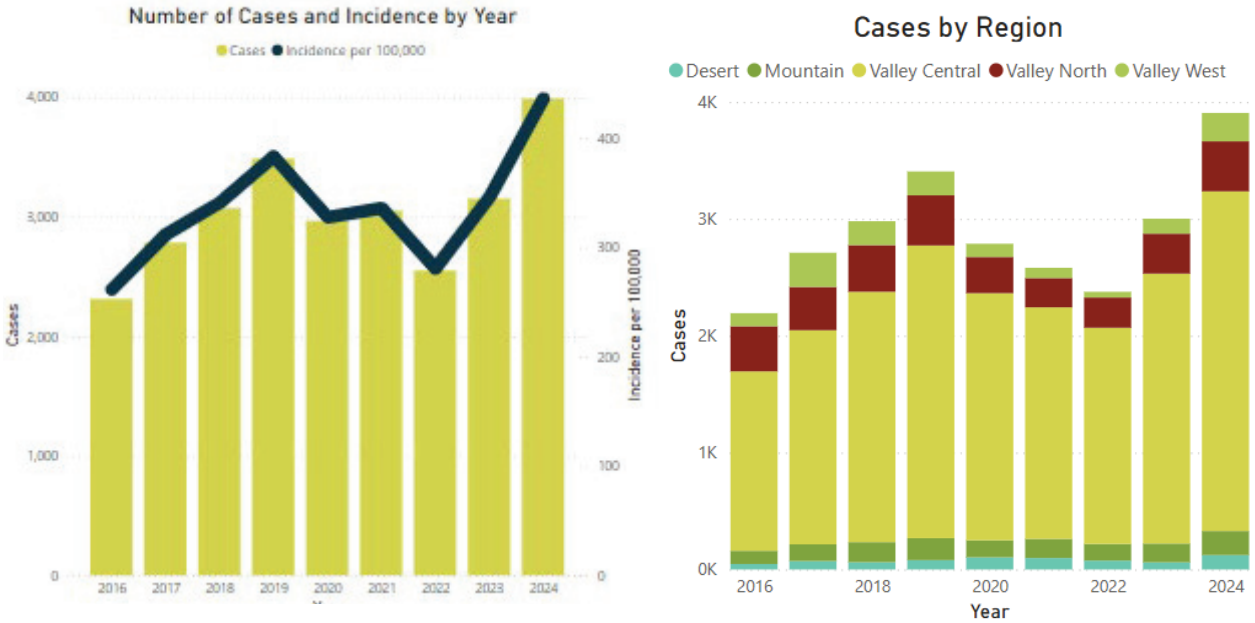


Figure 4: County Incidence Rates And Regional Cases By Year

The Project Site resides in the desert portion of Kern County. Since 2016, the total number of cases of Valley Fever in the desert portion of Kern County has increased from 47 in 2016 to 123 in 2024 (an increase of 261.70%).[8]

Since Valley Fever cases are directly related to the disturbance of soils in the area, the CEC must directly address the impacts that the project's construction phase will have on the workers onsite and potentially offsite in the community. A study in Antelope Valley identified a clear link between soil disturbance - due to large-scale renewable energy construction projects, agricultural management practices and PM_{10} fugitive dust emissions - and increased incidence of coccidioidomycosis.[9]

[8]Kern County Public Health. 2025. Valley Fever. It's In The Air. Be Aware. https://www.kernpublichealth.com/healthy-community/illness-disease/valley-fever

[9] Colson. 2017. Large-Scale Land Development, Fugitive Dust, and Increased Coccidioidomycosis Incidence in the Antelope Valley of California, 1999-2014. https://knowthecause.com/wp-content/uploads/2017/03/Colson2017FugitiveDustCoccidiodes.pdf

Figure 5: Valley Fever Incidence And Soil Disturbance

It is evident from the figure above that, as the number of acres of soil in the Antelope Valley were disturbed, the incidence rate of Valley Fever also increased. The mass disturbance of soils anticipated by the proposed Project will create the same conditions that were detailed in the study by Colson. [10]

The Project site's desert location and exposure to desert winds amplify these risks. Even when standard dust control measures are in place, high winds can mobilize substantial amounts of dust from graded areas generating PM_{10} and $PM_{2.5}$ emissions that carry Valley Fever spores and silica dust into surrounding communities. Alerts from air pollution control districts frequently accompany such wind events, underlining the inadequacy of typical dust suppression methods in preventing airborne spore exposure.

According to research on Valley Fever, outbreaks in populations with intense exposure to aerosolized arthroconidia (arthroconidia are the infectious particles of *Coccidiosis* species) are at greater risk for infection. These groups include agricultural or construction workers, or persons who participate in outdoor activities such as hunting or digging in the soil. Outbreaks of coccidioidomycosis have been linked to a variety of activities involving disturbance of impacted

[10] *ibid*

soils.[11,12,13] Since Valley Fever cases are directly related to the disturbance of soils in the area, the PSA must directly address the impacts that the project's construction phase will have on the surrounding communities.

Valley Fever often manifests as a mild respiratory illness, but it can progress to serious chronic forms, especially in immunocompromised individuals, and may even become disseminated, impacting organs including the skin, bones, brain, and spinal cord. Disseminated Valley Fever is associated with severe symptoms like meningitis, painful lesions, and swollen joints.

Given the significant public health risks associated with airborne Valley Fever spores, it is crucial that the CEC accurately disclose and mitigate the Project's risks to local air quality and public health, especially for on-site construction workers and downwind receptors. As discussed below, the PSA should include effective mitigation measures specifically tailored to Valley Fever, as standard dust controls are inadequate for managing the risks posed by this pathogen. Ensuring robust protections for both on-site workers and off-site receptors is essential to prevent potentially severe health consequences for the surrounding community.

2. The Proposed Dust Control Measures In The PSA Fail To Effectively Mitigate Significant Valley Fever Exposure Risks.

The standard fugitive dust mitigation measures proposed in the PSA are not adequate to protect construction workers and nearby sensitive receptors from exposure to Valley Fever spores. According to the mitigation measures outlined in the PSA for worker safety (WS-7), the project owner shall develop and implement a worker Valley Fever Prevention and Response Plan that includes an enhanced Dust Control Plan containing the requirements described in AQ-SC3 and AQ-SC4**.** AQ-

[11] Brown. Et al. 2013. Coccidioidomycosis: epidemiology. *Clinical Epidemiology*. 5:185-197.

[12] Rafael Laniado-Laborin, Expanding Understanding of Epidemiology of Coccidioidomycosis in the Western Hemisphere, Annals of the New York Academy of Sciences, v. 111, 2007, pp. 20–22, available at https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1196/annals.1406.004; Frederick S. Fisher, Mark

W. Bultman, Suzanne M. Johnson, Demosthenes Pappagianis, and Erik Zaborsky, Coccidioides Niches and Habitat Parameters in the Southwestern United States, a Matter of Scale, Annals of the New York Academy of Sciences, v. 111, 2007, pp. 47–72 ("All of the examined soil locations are noteworthy as generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected."), available at https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1196/annals.1406.031.

[13] Lawrence L. Schmelzer and R. Tabershaw, Exposure Factors in Occupational Coccidioidomycosis, American Journal of Public Health and the Nation's Health, v. 58, no. 1, 1968, pp. 107–113, Table 3; available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1.

SC3 focuses on construction fugitive dust control by requiring an Air Quality Construction Mitigation Plan (AQCMP) which would include mitigation measures to minimize fugitive dust plumes. AQ-SC4 requires monitoring of all visible dust plumes and details that observations of visible dust plumes that have the potential to be transported (a) off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner or (b) 200 feet beyond the centerline of the construction of linear facilities indicate that existing mitigation measures are not resulting in effective mitigation.

Both AQ-SC-3 and AQ-SC4 rely on Rule 401 and 402 EK-APCD. Rule 401 (Visible Emissions) requires that a person shall not discharge into the atmosphere emissions as dark as or darker than Ringelmann 1 or 20% opacity for more than 3 minutes in any one hour or of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke as dark as or darker than Ringelmann 1. Rule 402 for Fugitive Dust requires that a person shall not cause or allow fugitive dust emissions from any active operation to remain visible in the atmosphere beyond the property line of the emission source. As with Rule 401, the rule limits visible dust emissions to no more than 20% opacity.

All of the mitigation measures outlined above allow for a percentage of the dust that could be generated to be migrate offsite. Based on the Mitigation Measures outlined in the CalEEMOD model (typically utilized in the assessment of construction projects under the California Environmental Quality Act) watering exposed areas twice a day would reduce PM_{10} ands $PM_{2.5}$ emissions by 61 percent (61%). Increasing the watering frequency to 3 times per day would reduce PM_{10} and $PM_{2.5}$ emissions by 74%. Conventional dust control measures, such as measures AQ-SC3 and AQ-SC4, primarily focus on visible dust or larger dust particles—the PM_{10} fraction—and fail to address the very fine particles that transport Valley Fever spores, which are approximately 5 times smaller than typical PM_{10} particles and remain airborne much longer.[14] These fine particles, when disturbed by soil-disturbing activities, spread widely beyond site, posing a significant risk to both onsite workers and nearby communities.

The proposed compliance with Rules 401 and 402, which rely on a visual opacity reading for dust control, is insufficient to prevent exposure to Valley Fever spores. These rules are based on smoke-monitoring methods (U.S. EPA Methods 9 and 22) that require active monitoring by certified

[14] See, e.g., Cummings and others, 2010, p. 509; Schneider et al., 1997, p. 908 ("Primary prevention strategies (e.g., dust-control measures) for coccidioidomycosis in endemic areas have limited effectiveness.").

observers, rely on subjective observation, and are affected by variable such as lighting, distance, and weather conditions. Due to these limitations, opacity readings do not provide accurate, continuous data on fine airborne particles.

To address these shortcomings, the CEC should require active monitoring with dust monitors (particle measuring devices) immediately outside of the facility and around its perimeter. Continuous particle measures would offer several advantages. It eliminates the subjectivity inherent in visual opacity readings, leading to more reliable and consistent data. It allows for real-time tracking of dust particle levels, enabling prompt corrective actions if thresholds are exceeded. And it offers robust data sets that can be used for repeatability tests and to validate compliance with air quality standards. Incorporating active dust monitoring systems would ensure that air quality impacts are accurately assessed and mitigated, fulfilling the intent of the mitigation measures and conditions of compliance to protect public health and the environment.

Additionally, sampling for and removal of impacted soils prior to starting construction is the best solution to *Coccidiodes immitis* spores. Since *Coccidiodes immitis* resides in soils and are not subject to degradation, entrainment of the potentially impacted soils may cause additional issues to further development of the site.

The CEC should require that the Proponent implement mitigation measures to actively suppress the spread of Valley Fever by:

1. Controlling dust exposure:
    - Apply chemical stabilizers at least 24-hours prior to high wind event;
    - Apply water to all disturbed areas a minimum of three times per day. Watering frequency should be increased to a minimum of *four times per day* if there is any evidence of visible wind-driven fugitive dust;
    - Prohibit eating and smoking at the worksite, and provide separate, clean eating areas with hand-washing facilities.
    - Avoid outdoor construction operations during unusually windy conditions or in dust storms.
    - Consider limiting outdoor construction during the fall to essential jobs only, as the risk of cocci infection is higher during this season.
2. Preventing transport of cocci outside endemic areas:
    -

- Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate;
-
- Provide workers with coveralls daily, lockers (or other systems for keeping work and street clothing and shoes separate), daily changing and showering facilities.
- Clothing should be changed after work every day, preferably at the work site.
- Train workers to recognize that cocci may be transported offsite on contaminated equipment, clothing, and shoes; alternatively, consider installing boot-washing.
- Post warnings onsite and consider limiting access to visitors, especially those without adequate training and respiratory protection.

3. Improving medical surveillance for employees:
    - Employees should have prompt access to medical care, including suspected work-related illnesses and injuries.
    - Work with a medical professional to develop a protocol to medically evaluate employees who have symptoms of Valley Fever.
    - Consider preferentially contracting with 1-2 clinics in the area and communicate with the health care providers in those clinics to ensure that providers are aware that Valley Fever has been reported in the area. This will increase the likelihood that ill workers will receive prompt, proper and consistent medical care.
    - Respirator clearance should include medical evaluation for all new employees, annual re-evaluation for changes in medical status, and annual training, and fit-testing.
    - Skin testing is not recommended for evaluation of Valley Fever.[15]
    - If an employee is diagnosed with Valley Fever, a physician must determine if the employee should be taken off work, when they may return to work, and what type of work activities they may perform.

The CEC must adopt these evidence-based mitigation measures – proven effective in similar construction projects in endemic areas – to ensure comprehensive protection of public health.

[15] Short-term skin tests that produce results within 48 hours are now available. See Kerry Klein, NPR for Central California, New Valley Fever Skin Test Shows Promise, But Obstacles Remain, November 21, 2016; available at http://kvpr.org/post/new-valley-fever-skin-test-shows-promise-obstacles-remain.

Standard dust control measures are insufficient for preventing Valley Fever exposure, and only concrete, enforceable steps like those listed above will safeguard both onsite workers and surrounding communities.

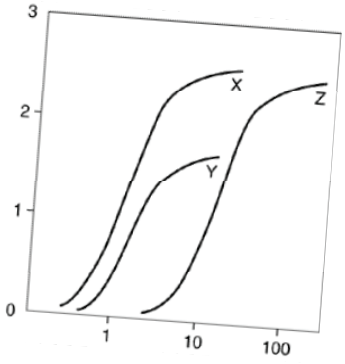
Conclusion

The facts identified and referenced in this comment letter lead me to reasonably conclude that the Project could result in significant impacts if allowed to proceed.

Sincerely,

Exhibit A

Curriculum Vitae



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B.S., Biophysical and Biochemical Sciences, University of Houston, 1987

Professional Experience:

Dr. Clark is a well recognized toxicologist, air modeler, and health scientist. He has 20 years of experience in researching the effects of environmental contaminants on human health including environmental fate and transport modeling (SCREEN3, AEROMOD, ISCST3, Johnson-Ettinger Vapor Intrusion Modeling); exposure assessment modeling (partitioning of contaminants in the environment as well as PBPK modeling); conducting and managing human health risk assessments for regulatory compliance and risk-based clean-up levels; and toxicological and medical literature research.

Significant projects performed by Dr. Clark include the following:

LITIGATION SUPPORT

Case: James Harold Caygle, et al, v. Drummond Company, Inc. Circuit Court for the Tenth Judicial Circuit, Jefferson County, Alabama. Civil Action. CV-2009

Client: Environmental Litgation Group, Birmingham, Alabama

Dr. Clark performed an air quality assessment of emissions from a coke factory located in Tarrant, Alabama. The assessment reviewed include a comprehensive review of air quality standards, measured concentrations of pollutants from factory, an inspection of the facility and detailed assessment of the impacts on the community. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Rose Roper V. Nissan North America, et al. Superior Court of the State Of California for the County Of Los Angeles – Central Civil West. Civil Action. NC041739

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to multiple chemicals, including benzene, who later developed a respiratory distress. A review of the individual's medical and occupational history was performed to prepare an exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to respiratory irritants. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: O'Neil V. Sherwin Williams, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to petroleum distillates who later developed a bladder cancer. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Summary judgment for defendants.

Case: Moore V., Shell Oil Company, et al. Superior Court of the State Of California for the County Of Los Angeles

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to chemicals while benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Raymond Saltonstall V. Fuller O'Brien, KILZ, and Zinsser, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Richard Boyer and Elizabeth Boyer, husband and wife, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-7G.

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: JoAnne R. Cook, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-9R

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of an individual exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Patrick Allen And Susan Allen, husband and wife, and Andrew Allen, a minor, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-W

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Michael Fahey, Susan Fahey V. Atlantic Richfield Company, et al. United States District Court Central District of California Civil Action Number CV-06 7109 JCL.

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Constance Acevedo, et al., V. California Spray-Chemical Company, et al., Superior Court of the State Of California, County Of Santa Cruz. Case No. CV 146344

Dr. Clark performed a comprehensive exposure assessment of community members exposed to toxic metals from a former lead arsenate manufacturing facility. The former manufacturing site had undergone a DTSC mandated removal action/remediation for the presence of the toxic metals at the site. Opinions were presented regarding the elevated levels of arsenic and lead (in attic dust and soils) found throughout the community and the potential for harm to the plaintiffs in question.

Case Result: Settlement in favor of defendant.

Case: Michael Nawrocki V. The Coastal Corporation, Kurk Fuel Company, Pautler Oil Service, State of New York Supreme Court, County of Erie, Index Number I2001-11247

Client: Richard G. Berger Attorney At Law, Buffalo, New York

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the

known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Judgement in favor of defendant.

SELECTED AIR MODELING RESEARCH/PROJECTS

Client – Confidential

Dr. Clark performed a comprehensive evaluation of criteria pollutants, air toxins, and particulate matter emissions from a carbon black production facility to determine the impacts on the surrounding communities. The results of the dispersion model will be used to estimate acute and chronic exposure concentrations to multiple contaminants and will be incorporated into a comprehensive risk evaluation.

Client – Confidential

Dr. Clark performed a comprehensive evaluation of air toxins and particulate matter emissions from a railroad tie manufacturing facility to determine the impacts on the surrounding communities. The results of the dispersion model have been used to estimate acute and chronic exposure concentrations to multiple contaminants and have been incorporated into a comprehensive risk evaluation.

Client – Los Angeles Alliance for a New Economy (LAANE), Los Angeles, California

Dr. Clark is advising the LAANE on air quality issues related to current flight operations at the Los Angeles International Airport (LAX) operated by the Los Angeles World Airport (LAWA) Authority. He is working with the LAANE and LAX staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client – City of Santa Monica, Santa Monica, California

Dr. Clark is advising the City of Santa Monica on air quality issues related to current flight operations at the facility. He is working with the City staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client: Omnitrans, San Bernardino, California

Dr. Clark managed a public health survey of three communities near transit fueling facilities in San Bernardino and Montclair California in compliance with California Senate Bill 1927. The survey included an epidemiological survey of the effected communities, emission surveys of local businesses, dispersion modeling to determine potential emission concentrations within the communities, and a comprehensive risk assessment of each community. The results of the study were presented to the Governor as mandated by Senate Bill 1927.

Client: Confidential, San Francisco, California

Summarized cancer types associated with exposure to metals and smoking. Researched the specific types of cancers associated with exposure to metals and smoking. Provided causation analysis of the association between cancer types and exposure for use by non-public health professionals.

Client: Confidential, Minneapolis, Minnesota

Prepared human health risk assessment of workers exposed to VOCs from neighboring petroleum storage/transport facility. Reviewed the systems in place for distribution of petroleum hydrocarbons to identify chemicals of concern (COCs), prepared comprehensive toxicological summaries of COCs, and quantified potential risks from carcinogens and non-carcinogens to receptors at or adjacent to site. This evaluation was used in the support of litigation.

Client – United Kingdom Environmental Agency

Dr. Clark is part of team that performed comprehensive evaluation of soil vapor intrusion of VOCs from former landfill adjacent residences for the United Kingdom's Environment

Agency. The evaluation included collection of liquid and soil vapor samples at site, modeling of vapor migration using the Johnson Ettinger Vapor Intrusion model, and calculation of site-specific health based vapor thresholds for chlorinated solvents, aromatic hydrocarbons, and semi-volatile organic compounds. The evaluation also included a detailed evaluation of the use, chemical characteristics, fate and transport, and toxicology of chemicals of concern (COC). The results of the evaluation have been used as a briefing tool for public health professionals.

EMERGING/PERSISTENT CONTAMINANT RESEARCH/PROJECTS

Client: Ameren Services, St. Louis, Missouri

Managed the preparation of a comprehensive human health risk assessment of workers and residents at or near an NPL site in Missouri. The former operations at the Property included the servicing and repair of electrical transformers, which resulted in soils and groundwater beneath the Property and adjacent land becoming impacted with PCB and chlorinated solvent compounds. The results were submitted to U.S. EPA for evaluation and will be used in the final ROD.

Client: City of Santa Clarita, Santa Clarita, California

Dr. Clark is managing the oversight of the characterization, remediation and development activities of a former 1,000 acre munitions manufacturing facility for the City of Santa Clarita. The site is impacted with a number of contaminants including perchlorate, unexploded ordinance, and volatile organic compounds (VOCs). The site is currently under a number of regulatory consent orders, including an Immanent and Substantial Endangerment Order. Dr. Clark is assisting the impacted municipality with the development of remediation strategies, interaction with the responsible parties and stakeholders, as well as interfacing with the regulatory agency responsible for oversight of the site cleanup.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of perchlorate in environment. Dr. Clark evaluated the production, use, chemical characteristics, fate and transport, toxicology, and remediation of perchlorate. Perchlorates form the basis of solid rocket fuels and have recently been detected in water supplies in the United States. The results of this research

were presented to the USEPA, National GroundWater, and ultimately published in a recent book entitled *Perchlorate in the Environment*.

Client – Confidential, Los Angeles, California

Dr. Clark is performing a comprehensive review of the potential for pharmaceuticals and their by-products to impact groundwater and surface water supplies. This evaluation will include a review if available data on the history of pharmaceutical production in the United States; the chemical characteristics of various pharmaceuticals; environmental fate and transport; uptake by xenobiotics; the potential effects of pharmaceuticals on water treatment systems; and the potential threat to public health. The results of the evaluation may be used as a briefing tool for non-public health professionals.

PUBLIC HEALTH/TOXICOLOGY

Client: Brayton Purcell, Novato, California

Dr. Clark performed a toxicological assessment of residents exposed to methyl-tertiary butyl ether (MTBE) from leaking underground storage tanks (LUSTs) adjacent to the subject property. The symptomology of residents and guests of the subject property were evaluated against the known outcomes in published literature to exposure to MTBE. The study found that residents had been exposed to MTBE in their drinking water; that concentrations of MTBE detected at the site were above regulatory guidelines; and, that the symptoms and outcomes expressed by residents and guests were consistent with symptoms and outcomes documented in published literature.

Client: Confidential, San Francisco, California

Identified and analyzed fifty years of epidemiological literature on workplace exposures to heavy metals. This research resulted in a summary of the types of cancer and non-cancer diseases associated with occupational exposure to chromium as well as the mortality and morbidity rates.

Client: Confidential, San Francisco, California

Summarized major public health research in United States. Identified major public health research efforts within United States over last twenty years. Results were used as a briefing tool for non-public health professionals.

Client: Confidential, San Francisco, California

Quantified the potential multi-pathway dose received by humans from a pesticide applied indoors. Part of team that developed exposure model and evaluated exposure concentrations in a comprehensive report on the plausible range of doses received by a specific person. This evaluation was used in the support of litigation.

Client: Covanta Energy, Westwood, California

Evaluated health risk from metals in biosolids applied as soil amendment on agricultural lands. The biosolids were created at a forest waste cogeneration facility using 96% whole tree wood chips and 4 percent green waste. Mass loading calculations were used to estimate Cr(VI) concentrations in agricultural soils based on a maximum loading rate of 40 tons of biomass per acre of agricultural soil. The results of the study were used by the Regulatory agency to determine that the application of biosolids did not constitute a health risk to workers applying the biosolids or to residences near the agricultural lands.

Client – United Kingdom Environmental Agency

Oversaw a comprehensive toxicological evaluation of methyl-*tertiary* butyl ether (M*t*BE) for the United Kingdom's Environment Agency. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of M*t*BE. The results of the evaluation have been used as a briefing tool for public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of *tertiary* butyl alcohol (TBA) in municipal drinking water system. TBA is the primary breakdown product of M*t*BE, and is suspected to be the primary cause of M*t*BE toxicity. This evaluation will include available information on the production, use, chemical characteristics, fate and transport in the environment, absorption, distribution, routes of detoxification, metabolites, carcinogenic potential, and remediation of TBA. The results of the evaluation were used as a briefing tool for non-public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of methyl *tertiary* butyl ether (MTBE) in municipal drinking water system. MTBE is a chemical added to gasoline to increase the octane

rating and to meet Federally mandated emission criteria. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of MTBE. The results of the evaluation have been were used as a briefing tool for non-public health professionals.

Client – Ministry of Environment, Lands & Parks, British Columbia

Dr. Clark assisted in the development of water quality guidelines for methyl tertiary-butyl ether (MTBE) to protect water uses in British Columbia (BC). The water uses to be considered includes freshwater and marine life, wildlife, industrial, and agricultural (e.g., irrigation and livestock watering) water uses. Guidelines from other jurisdictions for the protection of drinking water, recreation and aesthetics were to be identified.

Client: Confidential, Los Angeles, California

Prepared physiologically based pharmacokinetic (PBPK) assessment of lead risk of receptors at middle school built over former industrial facility. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client: Kaiser Venture Incorporated, Fontana, California

Prepared PBPK assessment of lead risk of receptors at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

RISK ASSESSMENTS/REMEDIAL INVESTIGATIONS

Client: Confidential, Atlanta, Georgia

Researched potential exposure and health risks to community members potentially exposed to creosote, polycyclic aromatic hydrocarbons, pentachlorophenol, and dioxin compounds used at a former wood treatment facility. Prepared a comprehensive toxicological summary of the chemicals of concern, including the chemical characteristics, absorption, distribution, and carcinogenic potential. Prepared risk characterization of the carcinogenic and non-carcinogenic chemicals based on the exposure assessment to quantify the potential risk to members of the surrounding community. This evaluation was used to help settle class-action tort.

Client: Confidential, Escondido, California

Prepared comprehensive Preliminary Endangerment Assessment (PEA) of dense non-aqueous liquid phase hydrocarbon (chlorinated solvents) contamination at a former printed circuit board manufacturing facility. This evaluation was used for litigation support and may be used as the basis for reaching closure of the site with the lead regulatory agency.

Client: Confidential, San Francisco, California

Summarized epidemiological evidence for connective tissue and autoimmune diseases for product liability litigation. Identified epidemiological research efforts on the health effects of medical prostheses. This research was used in a meta-analysis of the health effects and as a briefing tool for non-public health professionals.

Client: Confidential, Bogotá, Columbia

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of a 13.7 hectares plastic manufacturing facility in Bogotá, Colombia The risk assessment was used as the basis for the remedial goals and closure of the site.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally cadmium) and VOCs from soil and soil vapor at 12-acre former crude oilfield and municipal landfill. The site is currently used as a middle school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and was used as the basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Managed remedial investigation (RI) of heavy metals and volatile organic chemicals (VOCs) for a 15-acre former manufacturing facility. The RI investigation of the site included over 800 different sampling locations and the collection of soil, soil gas, and groundwater samples. The site is currently used as a year round school housing approximately 3,000 children. The Remedial Investigation was performed in a manner

that did not interrupt school activities and met the time restrictions placed on the project by the overseeing regulatory agency. The RI Report identified the off-site source of metals that impacted groundwater beneath the site and the sources of VOCs in soil gas and groundwater. The RI included a numerical model of vapor intrusion into the buildings at the site from the vadose zone to determine exposure concentrations and an air dispersion model of VOCs from the proposed soil vapor treatment system. The Feasibility Study for the Site is currently being drafted and may be used as the basis for granting closure of the site by DTSC.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally lead), VOCs, SVOCs, and PCBs from soil, soil vapor, and groundwater at 15-acre former manufacturing facility. The site is currently used as a year round school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and will be basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of VOC vapor intrusion into classrooms of middle school that was former 15-acre industrial facility. Using the Johnson-Ettinger Vapor Intrusion model, the evaluation determined acceptable soil gas concentrations at the site that did not pose health threat to students, staff, and residents. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client –Dominguez Energy, Carson, California

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of 6-acre portion of a 500-acre oil and natural gas production facility in Carson, California. The risk assessment was used as the basis for closure of the site.

Kaiser Ventures Incorporated, Fontana, California

Prepared health risk assessment of semi-volatile organic chemicals and metals for a fifty-year old wastewater treatment facility used at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

ANR Freight - Los Angeles, California

Prepared a comprehensive Preliminary Endangerment Assessment (PEA) of petroleum hydrocarbon and metal contamination of a former freight depot. This evaluation was as the basis for reaching closure of the site with lead regulatory agency.

Kaiser Ventures Incorporated, Fontana, California

Prepared comprehensive health risk assessment of semi-volatile organic chemicals and metals for 23-acre parcel of a 1,100-acre former steel mill. The health risk assessment was used to determine clean up goals and as the basis for granting closure of the site by lead regulatory agency. Air dispersion modeling using ISCST3 was performed to determine downwind exposure point concentrations at sensitive receptors within a 1 kilometer radius of the site. The results of the health risk assessment were presented at a public meeting sponsored by the Department of Toxic Substances Control (DTSC) in the community potentially affected by the site.

Unocal Corporation - Los Angeles, California

Prepared comprehensive assessment of petroleum hydrocarbons and metals for a former petroleum service station located next to sensitive population center (elementary school). The assessment used a probabilistic approach to estimate risks to the community and was used as the basis for granting closure of the site by lead regulatory agency.

Client: Confidential, Los Angeles, California

Managed oversight of remedial investigation most contaminated heavy metal site in California. Lead concentrations in soil excess of 68,000,000 parts per billion (ppb) have been measured at the site. This State Superfund Site was a former hard chrome plating operation that operated for approximately 40-years.

Client: Confidential, San Francisco, California

Coordinator of regional monitoring program to determine background concentrations of metals in air. Acted as liaison with SCAQMD and CARB to perform co-location sampling and comparison of accepted regulatory method with ASTM methodology.

Client: Confidential, San Francisco, California

Analyzed historical air monitoring data for South Coast Air Basin in Southern California and potential health risks related to ambient concentrations of carcinogenic metals and volatile organic compounds. Identified and reviewed the available literature and calculated risks from toxins in South Coast Air Basin.

IT Corporation, North Carolina

Prepared comprehensive evaluation of potential exposure of workers to air-borne VOCs at hazardous waste storage facility under SUPERFUND cleanup decree. Assessment used in developing health based clean-up levels.

Professional Associations

American Public Health Association (APHA)
Association for Environmental Health and Sciences (AEHS)
American Chemical Society (ACS)
California Redevelopment Association (CRA)
International Society of Environmental Forensics (ISEF)
Society of Environmental Toxicology and Chemistry (SETAC)

Publications and Presentations:

Books and Book Chapters

Sullivan, P., **J.J. J. Clark,** F.J. Agardy, and P.E. Rosenfeld. (2007). *Synthetic Toxins In The Food, Water and Air of American Cities*. Elsevier, Inc. Burlington, MA.

Sullivan, P. and **J.J. J. Clark**. 2006. *Choosing Safer Foods, A Guide To Minimizing Synthetic Chemicals In Your Diet*. Elsevier, Inc. Burlington, MA.

Sullivan, P., Agardy, F.J., and **J.J.J. Clark**. 2005. *The Environmental Science of Drinking Water*. Elsevier, Inc. Burlington, MA.

Sullivan, P.J., Agardy, F.J., **Clark, J.J.J.** 2002. *America's Threatened Drinking Water: Hazards and Solutions*. Trafford Publishing, Victoria B.C.

Clark, J.J.J. 2001. "TBA: Chemical Properties, Production & Use, Fate and Transport, Toxicology, Detection in Groundwater, and Regulatory Standards" in *Oxygenates in the Environment.* Art Diaz, Ed.. Oxford University Press: New York.

Clark, J.J.J. 2000. "Toxicology of Perchlorate" in *Perchlorate in the Environment.* Edward Urbansky, Ed. Kluwer/Plenum: New York.

Clark, J.J.J. 1995. Probabilistic Forecasting of Volatile Organic Compound Concentrations At The Soil Surface From Contaminated Groundwater. UMI.

Baker, J.; **Clark, J.J.J.**; Stanford, J.T. 1994. Ex Situ Remediation of Diesel Contaminated Railroad Sand by Soil Washing. Principles and Practices for Diesel Contaminated Soils, Volume III. P.T. Kostecki, E.J. Calabrese, and C.P.L. Barkan, eds. Amherst Scientific Publishers, Amherst, MA. pp 89-96.

Journal and Proceeding Articles

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008) A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equialency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. Organohalogen Compounds, Volume 70 (2008) page 002254.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008) Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. Organohalogen Compounds, Volume 70 (2008) page 000527

Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** (2007). "Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." *Environmental Research.* 105:194-199.

Rosenfeld, P.E., **Clark, J. J.,** Hensley, A.R., and Suffet, I.H. 2007. "The Use Of An Odor Wheel Classification For The Evaluation of Human Health Risk Criteria For Compost Facilities" Water Science & Technology. 55(5): 345-357.

Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** 2006. "Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006, August 21 – 25, 2006. Radisson SAS Scandinavia Hotel in Oslo Norway.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2005. "The Value Of An Odor Quality Classification Scheme For Compost Facility Evaluations" The U.S. Composting Council's 13th Annual Conference January 23 - 26, 2005, Crowne Plaza Riverwalk, San Antonio, TX.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2004. "The Value Of An Odor Quality Classification Scheme For Urban Odor" WEFTEC 2004. 77th Annual Technical Exhibition & Conference October 2 - 6, 2004, Ernest N. Morial Convention Center, New Orleans, Louisiana.

Clark, J.J.J. 2003. "Manufacturing, Use, Regulation, and Occurrence of a Known Endocrine Disrupting Chemical (EDC), 2,4-Dichlorophnoxyacetic Acid (2,4-D) in California Drinking Water Supplies." National Groundwater Association Southwest Focus Conference: Water Supply and Emerging Contaminants. Minneapolis, MN. March 20, 2003.

Rosenfeld, P. and **J.J.J. Clark**. 2003. "Understanding Historical Use, Chemical Properties, Toxicity, and Regulatory Guidance" National Groundwater Association Southwest Focus Conference: Water Supply and Emerging Contaminants. Phoenix, AZ. February 21, 2003.

Clark, J.J.J., Brown A. 1999. Perchlorate Contamination: Fate in the Environment and Treatment Options. In Situ and On-Site Bioremediation, Fifth International Symposium. San Diego, CA, April, 1999.

Clark, J.J.J. 1998. Health Effects of Perchlorate and the New Reference Dose (RfD). Proceedings From the Groundwater Resource Association Seventh Annual Meeting, Walnut Creek, CA, October 23, 1998.

Browne, T., **Clark, J.J.J.** 1998. Treatment Options For Perchlorate In Drinking Water. Proceedings From the Groundwater Resource Association Seventh Annual Meeting, Walnut Creek, CA, October 23, 1998.

Clark, J.J.J., Brown, A., Rodriguez, R. 1998. The Public Health Implications of MtBE and Perchlorate in Water: Risk Management Decisions for Water Purveyors. Proceedings of the National Ground Water Association, Anaheim, CA, June 3-4, 1998.

Clark J.J.J., Brown, A., Ulrey, A. 1997. Impacts of Perchlorate On Drinking Water In The Western United States. U.S. EPA Symposium on Biological and Chemical Reduction of Chlorate and Perchlorate, Cincinnati, OH, December 5, 1997.

Clark, J.J.J.; Corbett, G.E.; Kerger, B.D.; Finley, B.L.; Paustenbach, D.J. 1996. Dermal Uptake of Hexavalent Chromium In Human Volunteers: Measures of Systemic Uptake From Immersion in Water At 22 PPM. Toxicologist. 30(1):14.

Dodge, D.G.; **Clark, J.J.J.**; Kerger, B.D.; Richter, R.O.; Finley, B.L.; Paustenbach, D.J. 1996. Assessment of Airborne Hexavalent Chromium In The Home Following Use of Contaminated Tapwater. Toxicologist. 30(1):117-118.

Paulo, M.T.; Gong, H., Jr.; **Clark, J.J.J.** (1992). Effects of Pretreatment with Ipratroprium Bromide in COPD Patients Exposed to Ozone. American Review of Respiratory Disease. 145(4):A96.

Harber, P.H.; Gong, H., Jr.; Lachenbruch, A.; **Clark, J.**; Hsu, P. (1992). Respiratory Pattern Effect of Acute Sulfur Dioxide Exposure in Asthmatics. American Review of Respiratory Disease. 145(4):A88.

McManus, M.S.; Gong, H., Jr.; Clements, P.; **Clark, J.J.J.** (1991). Respiratory Response of Patients With Interstitial Lung Disease To Inhaled Ozone. American Review of Respiratory Disease. 143(4):A91.

Gong, H., Jr.; Simmons, M.S.; McManus, M.S.; Tashkin, D.P.; Clark, V.A.; Detels, R.; **Clark, J.J.** (1990). Relationship Between Responses to Chronic Oxidant and Acute

Ozone Exposures in Residents of Los Angeles County. American Review of Respiratory Disease. 141(4):A70.

Tierney, D.F. and **J.J.J. Clark.** (1990). Lung Polyamine Content Can Be Increased By Spermidine Infusions Into Hyperoxic Rats. American Review of Respiratory Disease. 139(4):A41.

ATTACHMENT B

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #25-001.01

June 12, 2025

Richard M. Franco, Esquire
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, California 94080

SUBJECT: Willow Rock Energy Storage Center – Preliminary Staff Assessment Comments on Noise and Vibration Analysis

Dear Mr. Franco:

Per your request, we have reviewed the Willow Rock Energy Storage Center (WRESC) Preliminary Staff Assessment (PSA), including Section 5.9 Noise and Vibration. The project would be constructed on over 88 acres of private land immediately north of Dawn Road and between State Route (SR) 14 and Sierra Highway within unincorporated, southeastern Kern County, California. The WRESC facility would use a compressed air energy storage technology. Energy stored at the WRESC would be delivered to Southern California Edison's Whirlwind Substation located southwest of the WRESC at the intersection of 170th Street W and Rosamond Boulevard, via a new approximately 19- mile long 230-kilovolt (kV) generation-tie line. The WRESC would be capable of operating on a 24-hour basis, 365 days a year.

The WRESC project provided a noise and vibration analysis in its Supplemental Application for Certification (SAFC). This noise and vibration analysis is detailed in Section 5.7 of the PSA reference **ESHD 2024h** – Ellison Schneider Harris & Donlan LLP (TN 254805). Willow Rock Energy Storage Center SAFC, Volume 1, Part B, dated March 1, 2024.

We have generated the following comments:

Operations Noise

1. The PSA focuses its attention on issues relating to local ordinances, regulations and standards (LORS), but fails to acknowledge that the SAFC relied on a prior CEC noise analysis which adopted a significance threshold that compares the project to the pre-existing **background noise**. The SAFC (Section 5.7) does reference the prior CEC threshold (ESHD 2024h, Section 5.7, page 5.7-15) and presents an analysis accordingly. The CEC opinion was rendered in context to CEQA: to consider whether a project would result in a substantial permanent increase in ambient noise levels it considers the project noise relative to the **background noise.** The exact wording is cited in Figure 1,which is not quite the same as the SAFC's interpretation:

> Staff considers it reasonable to assume that an increase in background noise levels up to 5 dBA in a residential setting is insignificant; an increase of more than 10 dBA is considered significant. An increase between 5 and 10 dBA should be considered adverse, but may be either significant or insignificant, depending on the particular circumstances of the case.

Figure 1 From Noise and Vibration Section for the TID A2PP Power Plant Project, pg. 4.6-6 (July 2010)

The CEC performed no independent noise analysis, but relied on the analysis presented in the SAFC. This SAFC analysis comparing the project to the background noise is not considered in the PSA which ignores the applicant's analysis using the CEC's previously adopted threshold, and the PSA provides no substantial evidence to explain why it omits any discussion of background noise in its discussion of its methodology to determine whether the project noise would be significant (PSA Section 5.9, page 5.9-4). In doing so the PSA omits the significant impact of the project as explained below.

2. The PSA underreports the significance of the WRESC project. The existing noise environment can be characterized in several ways, yet the PSA only focuses on the equivalent level, L_{eq}, and the 24-hour day-night level, L_{dn}. Since this is a rural community, the **background noise** is an essential issue to consider as this is the noise level that people hear when they're trying to sleep.

    - The SAFC provides data characterizing the **background noise** in the project area with measurements of the L_{90}, or noise level exceeded 90% of the time. This is in alignment with common usage in environmental noise analysis. Outdoor noise sources which are continuous in nature will strongly affect the L_{90}; continuous sources include turbines, compressors, generators, heat exchangers, pumps, transformers etc. These types of noise sources are associated with the WRESC; thus, the continuous noise generated by the WRESC would directly increase the background noise in the community. For graphical comparison, see Figure 2 which plots some of the long-term noise results measured at CML-1 (near the highway), and CML-6 (Project site, about 2,000 ft from the highway). The background noise is shown as the black dashes.

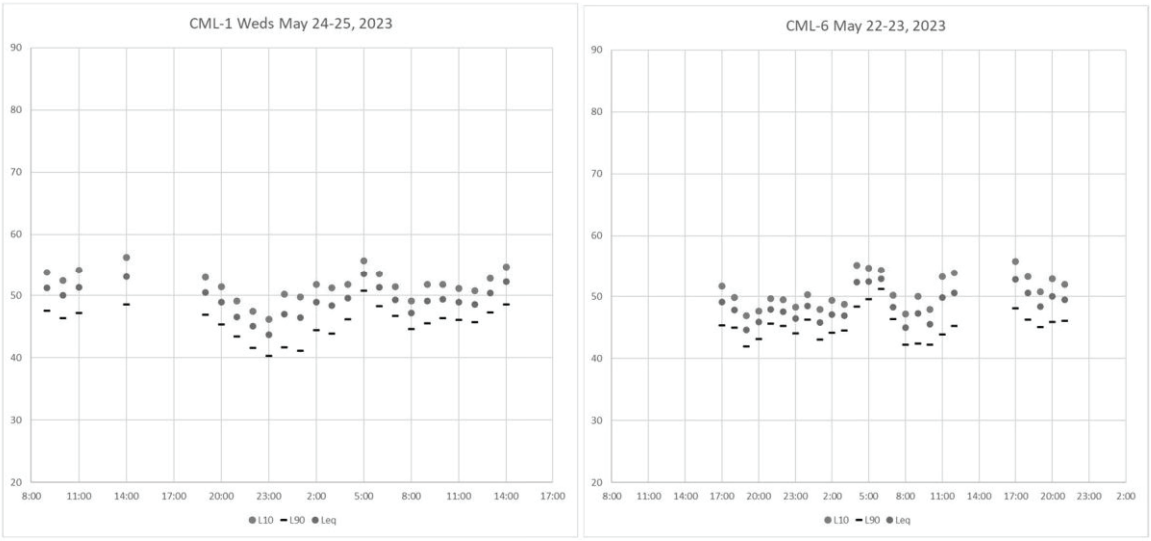

Figure 2 Noise measurements at CML-1 (left) and CML-6 (right) (data plotted from SAFC, ESHDh)

- The PSA uses the wrong metric. The ambient noise is the combination of all noises in the environment, including continuous noise and intermittent noise, and it is often measured with the equivalent level, or L_{eq}. The L_{eq} can be strongly influenced by high level, short duration noises such as passing cars, aircraft overflights, etc. The L_{eq} is not a metric applicable to the background noise level. The PSA omits any reference to the background noise and only compares the WRESC to the ambient noise (PSA Section 5.9, page 5.9-8). Table 1 below compares the combined operational noise levels with the baseline levels compared to the baseline conditions. These results were taken from the SAFC analysis (ESHDh, Table 5.7-13 p. 5.7-28), however the SAFC and the PSA erroneously compare apples to oranges; the SAFC analysis does not compare the project noise to the background level (L_{90}); they calculate a "day-night" predicted noise level (L_{dn}) which is compared to the existing L_{dn}; there is no calculation of the noise increase relative to the background (L_{90}), and their calculation obscures the nighttime noise impact.

- Furthermore, the PSA only reports the results at NSA-1 which is the receptor closest to the highway and closest to the primary existing noise source; the PSA omits the greatest impact which would occur at NSA-7 which is farther away from the highway where the baseline conditions are much quieter. **At NSA-7 the operational noise would be 5 dBA higher than the background during daytime hours and during nighttime hours the WRESC project noise would be 9 dBA higher than the background and 5 dBA higher than the ambient**. Referring back to the CEC threshold discussed above, nighttime operational noise from the Project is 9 dBA higher than background. This increase is considered adverse, and given that it is an increase in nighttime noise that could interfere with sleep it should be considered significant.

Table 1 Compare WRESC Operational Noise with Baseline Conditions

Receptor Site	Operational Noise[1]	Daytime Baseline	Nighttime Baseline
NSA-1	50 dBA L_{eq}	background[2]: 47 dBA L_{90} ambient[2]: 50 dBA L_{eq}	background[2]: 46 dBA L_{90} ambient[2]: 49 dBA L_{eq}
NSA-2	43 dBA L_{eq}	background[2]: 47 dBA L_{90} ambient[2]: 50 dBA L_{eq}	background[2]: 46 dBA L_{90} ambient[2]: 49 dBA L_{eq}
NSA-3	40 dBA L_{eq}	background[3]: 45 dBA L_{90} ambient[3]: 53 dBA L_{eq}	background[3]: 38 dBA L_{90} ambient[3]: 47 dBA L_{eq}
NSA-4	42 dBA L_{eq}	background[3]: 45 dBA L_{90} ambient[3]: 53 dBA L_{eq}	background[3]: 38 dBA L_{90} ambient[3]: 47 dBA L_{eq}
NSA-5	41 dBA L_{eq}	background[3]: 42 dBA L_{90} ambient[3]: 47 dBA L_{eq}	background[3]: 41 dBA L_{90} ambient[3]: 44 dBA L_{eq}
NSA-6	40 dBA L_{eq}	background[3]: 42 dBA L_{90} ambient[3]: 47 dBA L_{eq}	background[3]: 41 dBA L_{90} ambient[3]: 44 dBA L_{eq}
NSA-7	**41 dBA L_{eq}**	background[3]: **36** dBA L_{90} ambient[3]: 43 dBA L_{eq}	background[3]: **32** dBA L_{90} ambient[3]: **36** dBA L_{eq}
		New background: 41 dBA L_{90} New ambient: 46 dBA Leq	New background: 41 dBA L_{90} New ambient: 42 dBA Leq

Notes
1. ESHD 2024h Table 5.7-12, page 5.7-27
2. ESHD 2024h Table 5.7-5, page 5.7-10
3. ESHD 2024h Table 5.7-4, page 5.7-8

- With the introduction of the new noise sources from the WRESC project, the WRESC noise level of 41 dBA at NSA-7 would, in effect, become the new background noise level, and the baseline ambient would combine with the WRESC noise as shown in Table 1. These noise increases will be "distinct" (PSA page 5.9-5) and noticeable, and the project would at times match or exceed the existing intermittent sources (characterized by the L_{10}).

3. The SAFC (ESHD 2024h page 5.7-7) notes that the CadnaA analysis model incorporates a factor of 0.5 ground absorption effects which corresponds to ""soft ground" and "boreal forest and soil-covered terrain." This is not a forest floor. The ground absorption factor of 0.5 likely overestimates the absorption effect at the Project area which results in an **underestimation** of the WRESC operational noise. Typically, sunbaked and hard-packed grounds in this areas of California provide very little ground absorption. The flow resistivity of exposed soil that has been rain packed is 4,000 to 8,000 kPA s/m^2, and the ground parameter, G, should be less than 0.3[1].

[1] Bies. Hansen, et. al., Engineering Noise Control, 5th Edition, pp. 227-228.

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TABLE 5.2 Flow resistivities for some common ground surface types (to be used with the ISO9613-2, NMPB-2008 and Harmonoise propagation models)

Ground surface class	Value of ISO9613-2 parameter, G	Value of NMPB-2008 parameter, G	Representative flow resistivity R_1 (kPa s/m^2) (Harmonoise)	Ground surface description
A	1	1	12.5	Very soft (snow or moss)
B	1	1	31.5	Soft forest floor
C	1	1	80	Uncompacted, loose ground
D	1	1	200	Normal uncompacted ground (pastures, forest floors)
E	0	0.7	500	Compacted fields, lawns and gravel
F	0	0.3	2000	Compacted dense ground (gravel road, parking lot)
G	0	0	20000	Asphalt, concrete
H	0	0	200000	Water

Figure 3 From Bies, Hansen, et. al., Engineering Noise Control

4. The PSA and SAFC fail to determine the potential impact on sleep disturbance from the WRESC project from the new background levels caused by the equipment operating 24/7. While the noise from outdoor equipment is expected to reduce substantially due to distance alone, exterior walls and windows in residential structures of standard construction have low sound blocking ability (transmission loss) at lower frequencies[2]. This is why some sounds, such as low frequency hums, are clearly audible inside homes but are difficult to detect outdoors. As the equipment sound power levels would exceed 100 dB at the lower frequencies (ESHD 2024h Table 5.7-11, page 5.7-25), the corresponding low frequency noise at 9000 ft away could be 20 to 25 dB inside and be distinctly audible. Table 1 provides an example of what could be experienced indoors near a window, based on the sound source information provided in the SAFC .

   Even if the WRESC noise is not "tonal", the change in noise character is potentially annoying to residents in the community. Long-term measurements were only documented near NSA-1, and none were done near NSA-7 or NSA-5. The following measures should be adopted to assess, and if necessary, to mitigate, these potentially significant impacts.

Table 2 Estimated Frequencies from WRESC at NSA-7 – No Inversion Effects

	31.5	63	125	250	500	1000	2000	4000	8000
Outdoor Spectrum (41 dBA)	46	49	49	38	37	34	33	32	29
Indoor Spectrum	**46**	**39**	**28**	16	9	0	0	0	1

[2] Ibid, pp. 400-401.

- Condition Noise-4 must include documentation of the post-construction-pre-operational condition without WRESC operation for at least two nighttime periods under calm or low wind conditions. The noise survey must include 1/3-octave band analysis of the entire nighttime period from 10 PM to 7 AM on both nights, with several high quality sound samples recorded over 15 to 30 minute periods. These pre-operations conditions must be documented at NSA-7 and at one other location in the vicinity, and near NSA-5.

- Recordings of the interior pre-operations condition inside homes near NSA-7 and NSA-5 must also be conducted. Thus, if complaints are filed this data would be available for comparison with the operating conditions, potentially reducing the need to shut down the WRESC to investigate noise complaints.

5. The noise model in the SAFC does not properly take into account the effects of a thermal inversion. During periods of the year with cold air temperature near the ground and a warm layer of air sitting above the cool air, a thermal inversion will cause sound to diffract toward the ground instead of dissipating outwards into the sky. A strong inversion can increase sound by 5 to 10 dBA and this effect can be measured at distances less than 5,000 ft out to several miles[3]. The SAFC analysis claims that the settings it used are sufficient to determine the effects of a moderate inversion using ISO 9613 (ESHD 2024h, Section 5.7, Table 5.7-10), however the typical conditions in the project area are more likely to generate strong inversions. **The noise levels listed above in Table 1 could be 5 to 10 dBA higher during strong inversions.**

    - The noise analysis should re-evaluate the CadnaA software settings and incorporate the CONCAWE module to determine the effects of a strong inversion during late night and early morning periods which could affect sleep.

6. The PSA Condition (Noise-4) will require a post-construction noise study, and any pure tones will need to be eliminated.

    - The post-construction-pre-operational noise study described above would help to distinguish WRESC noise from other sources in the community.

Construction Noise and Vibration

7. The PSA erroneously uses incorrect baseline conditions when it compares project construction noise to the existing condition.

    - The PSA erroneously compares blasting noise to the baseline conditions. The short-term blasting noise of 65 dBA at NSA-1 was compared to the 24-hour day-night metric, the L_{dn} (PSA Section 5.9, page 5.9-7), instead of the daytime baseline. The blasting noise would be 18 dBA higher than the background 47 dBA L_{90} and 15 dBA higher than the ambient 50 dBA L_{eq}.

[3] For example, Shoreline Amphitheater in Mountain View received numerous complaints from people in neighboring Palo Alto. https://www.sfgate.com/news/article/lawsuits-threatened-over-shoreline-noise-2957607.php

- Similarly, the PSA erroneously reports the highest construction noise value to be 46 dBA (PSA Section 5.9, page 5.9-7). The SAFC calculated the construction noise at NSA-1 to be 47 dBA (L_{eq}) during daytime hours (ESHD 2024h Table 5.7-9, page 5.7-19). Furthermore, this value should be compared to the typical baseline noise level (background: 47 dBA L_{90}, ambient: 50 dBA L_{eq}), and the PSA should not compare daily construction noise to the L_{dn}.

8. The PSA and SAFC fail to disclose noise and vibration analysis to evaluate potential impacts related to construction of the transmission line which would require heavy machinery which generates noise and/or vibration to install power poles or towers. Sections of underground lines could require trenching and vibration compaction, or possibly jacking pits and equipment in the case of trenchless construction. The transmission line would be less than 50 ft from homes along Mojave-Tropico Road and within 75 ft of school buildings for underground option 5 (PSA, Section 3.5, Figure 1-6). The above-ground transmission line could pass within 100 ft of homes; installation of new power poles or towers could generate vibration impacts at these homes. None of these potential impacts associated with construction of the transmission line were analyzed or disclosed.

Please feel free to contact me with any questions on this information.

Very truly yours,

WILSON IHRIG

Deborah A. Jue, INCE-USA

Principal

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WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

DEBORAH JUE

Principal

Since joining Wilson Ihrig in 1990, Ms. Jue has been involved in with many projects from environmental assessments and entitlements, through design development, construction documents and construction administration support. As an acoustical consultant, she has provided noise measurement, analysis and recommendations to control noise and vibration both at the interior of the project and at the neighboring properties. She has authored many reports concerning compliance with the requirements of California Noise Insulation Standards, Title 24, local Noise Elements, environmental assessments and Federal noise criteria, and is well aware of the additional design and construction technique requirements to achieve industry standards. Ms. Jue has authored or provided input for many environmental documents and technical studies in accordance with NEPA and California's CEQA regulations, most of them related to surface transportation, and she gives presentations to public officials when necessary to explain construction noise problems, noise mitigation goals, and noise control methods. She can develop construction noise and vibration criteria to address vibration damage potential to nearby buildings and sensitive structures, and vibration annoyance or disruption potential for occupants of nearby buildings.

Education

- M.S. in Mechanical Engineering, University of California, Berkeley, 1998
- B.S. in General Engineering: Acoustics, Stanford University, 1988

Professional Associations (Member)

- American Society of Mechanical Engineers
- Acoustical Society of America
- National Council of Acoustical Consultants
- Institute of Noise Control Engineering
- WTS
- Transportation Research Board, AEP80 Standing Committee Member (2021-2024)

Research and Published Papers

- ACRP Report 175, ACRP 07-14, *Improving Intelligibility of Airport Terminal Public Address Systems*
- NCHRP 25-25, *Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects*
- *Transportation Research Record*, V. 2502, "Considerations to Establish Ground-Borne Noise Criteria to Define Mitigation for Noise-Sensitive Spaces"

Relevant Experience

- California High Speed Rail Caltrain Corridor EIR/EIS, San Francisco to San Jose
- UC Berkeley Northgate Hall A/V Renovations, Berkeley
- MacArthur Station, *long-term construction noise and vibration monitoring*, Oakland
- Safeway @ Claremont & College, *HVAC noise and construction noise monitoring*, Oakland
- ACTC I-80/Ashby, *interchange traffic noise analysis*, Berkeley and Emeryville
- ACTC I-680 Express Lanes, *traffic noise analysis*, Contra Costa County, CA
- Chase Arena, *construction noise and vibration monitoring*, San Francisco

ATTACHMENT C

June 11, 2025

Mr. Richard M. Franco
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Subject: Comments on the Preliminary Staff Assessment for the Willow Rock Energy Storage Center Project

Dear Mr. Franco:

This letter contains my comments on the Preliminary Staff Assessment ("PSA") prepared by California Energy Commission Staff ("Staff") for the Willow Rock Energy Storage Center ("WRESC") Project ("Project"). Hydrostor, Inc. ("Applicant") proposes to construct and operate a proprietary, advanced compressed air energy storage facility on approximately 88.6 acres of private land immediately north of Dawn Road and between State Route (SR) 14 and Sierra Highway within the Antelope Valley in southeastern Kern County, California. In addition to the WRESC facility, the Project entails: (a) construction of a 19-mile-long, 230 kV single-circuit double-bundle conductor gen-tie line interconnecting to the SCE Whirlwind Substation with a preferred gen-tie route and route options; (b) upgrades to Dawn Road between the SR 14 interchange and Sierra Highway; and (c) laydown, storage, and parking areas totaling approximately122 acres.[1]

I am an environmental biologist with 32 years of professional experience in wildlife biology and natural resources management. I have served as a biological resources expert for over 200 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; preparation and peer review of environmental compliance documents prepared pursuant to the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"); and preparation of written comments that address deficiencies with CEQA and NEPA documents. My work has included written and oral testimony for the California Energy Commission ("CEC"), 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, my work on other projects in the Antelope Valley, a site tour in November 2024, and the knowledge and experience I have acquired during my 32-year career in the field of natural resources management.

[1] The Applicant has identified three properties for laydown, storage, and parking. These properties were named P1, P2, and Villa Haines.

PROJECT DESCRIPTION

Access Roads

The PSA provides inconsistent information on impacts associated with access roads that would be constructed for the Project's gen-tie line. For example, page 3-3 of the PSA states the Project includes "[a]n estimated up to 1.5 miles of unpaved temporary access road along the gen-tie line corridor as needed (approximately 3.7 acres)," whereas page 5.4-21 of the PSA states there would be up to 1.75 miles of new access roads causing approximately 4 acres of permanent impacts. Table 5.2-10 in the PSA indicates that new access roads would cause only 2.09 acres of impacts. The PSA does not:

1) provide a map that shows where new access roads would be constructed, nor does it discuss how Project access roads would be maintained;
2) describe how frequently access roads would be used and maintained after construction of the gen-tie line; or
3) discuss the fate of the Project's access roads upon decommissioning of the WRESC facility.

These deficiencies preclude full understanding of the Project's direct and indirect impacts.

The PSA does not explicitly identify the width of the Project's access roads. However, if constructing 1.5 miles of access roads would result in 3.7 acres of impacts (as stated on PSA page 3-3), the access roads would be approximately 20 feet wide. This is consistent with: (a) State regulations pertaining to fire safety;[2] and (b) other projects in the Antelope Valley, which have required 20-foot wide access roads to facilitate construction and maintenance of a gen-tie line.[3]

Information and maps provided by Applicant strongly suggest that the PSA substantially underestimates the amount of ground disturbance associated with construction and operation of the Project's gen-tie line. Specifically, the PSA estimates the Project would require constructing 1.5 to 1.75 miles of new access roads. This appears to be consistent with the length of the "proposed access roads" depicted in Attachment DR125-1 (TN 261516). However, there are three reasons why the PSA's estimate does not appear to be accurate.

First, the Applicant stated that it does not anticipate needing to widen, grade, or make other improvements to existing roads along the Project's gen-tie line route.[4] However, many of the existing roads that the Applicant intends to use for installation and maintenance of the gen-tie line are narrow dirt roads (approximately 10 feet wide) that are not maintained by the County.[5] At a minimum, these roads would need to be widened to accommodate the heavy equipment

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[2] *See* 14 CCR §1273.
[3] *See* Kern County. 2023 Nov. Draft Environmental Impact Report for the Enterprise Solar Storage Project. p. 4.1-50.
[4] Response to CURE Data Request 22 (TN 259338).
[5] Kern County. Kern County GIS. Transportation data layer. [Accessed 2025 May 21]. https://maps.kerncounty.com/H5/index.html?viewer=KCPublic

used to transport and install the transmission line and poles (e.g., drill rigs, cranes, and tractor trailers).

Second, the figures provided by the Applicant depict several proposed transmission poles (and associated pole construction sites) that are not adjacent to an existing road, and for which no access roads have been proposed (e.g., Figure 1, below).[6] Road construction or other forms of ground disturbance would be required to access these pole locations and construction sites.

Third, Condition of Certification ("COC") BIO-18 requires installation of bird flight diverters on the transmission line in all areas within 5 miles of Swainson's hawk nests. A bucket truck is typically used to install bird flight diverters on transmission lines. Because portions of the preferred transmission line route would be set back from the associated access road, use of a bucket truck to install flight diverters would require construction of spur roads (or other forms of ground disturbance), which were not accounted for in the PSA.

The fact that the Project's access roads would be relatively narrow does not mean that their impacts would be minimal. Roads cause nearly complete destruction of soil conditions and plant cover, and they serve as a vector for introduced plant and animal species. In addition, roads cause mortality of animals; habitat fragmentation (with concomitant restriction of movements and gene flow); increased sedimentation; and increased access to remote areas for illegal dumping, collection of plants and animals, and anthropogenic fire.[7] These impacts can extend far beyond the boundaries of the roadway.[8] As a result, it is critical that the PSA provide accurate information on the amount of road construction and widening needed to install and maintain the Project's gen-tie line.

[6] *See* Attachment DR125-1 (TN 261516), Figures DR125-1, 125-5, and 125-21.
[7] Lovich JE, Bainbridge D. 1999. Anthropogenic degradation of the southern California desert ecosystem and prospects for natural recovery and restoration. Environmental management 24:309-326. *See also* Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.
[8] *Ibid.*

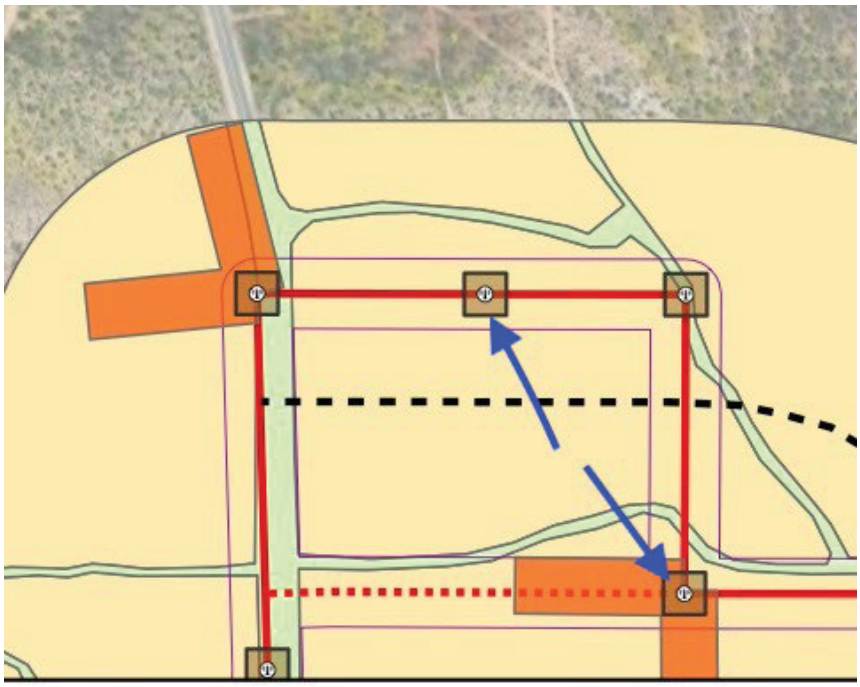

Figure 1. Example of proposed transmission pole construction sites (blue arrows) with no existing or proposed road access. Image adapted from Figure DR125-5 provided in response to CEC Data Requests Set 6.

Changes to the Preferred Transmission Line Route

In response to CEC Data Requests Set 6, the Applicant provided Attachment DR125-1 (TN 261516), which contains maps depicting vegetation communities, the preferred transmission line route and options, existing unimproved roads, proposed access roads, proposed transmission pole locations, and other Project features. Importantly, Attachment DR125-1 depicts four places where the Applicant altered the preferred transmission line route[9] sometime after December 16, 2024.[10]

The maps provided in the PSA depict the previously proposed transmission line route and fail to reflect the route changes made by the Applicant.[11] This has implications on: (a) the adequacy of the Applicant's surveys (i.e., some of the transmission line route revisions are within areas that were not surveyed);[12] and (b) the accuracy of the PSA's impact analyses.

[9] Attachment DR125-1 (TN 261516), Figures DR125-1, -5, -11, and -21.
[10] The figures provided in Attachment DR116-1 (TN 260808) depict the originally proposed route for the preferred transmission line and are dated December 16, 2024.
[11] *See* PSA, Appendix C.
[12] *See* Attachment DR8 (TN 259338), Figures DR 8-1 through 8-18 (showing survey areas) and Attachment DR125 (TN 261516), Figures DR125-1 through 125-22 (showing disturbance areas associated with the currently proposed transmission line route).

Gen-tie Route Options

According to the PSA's Project Description, the Project includes "[o]ne approximately 19-mile-long 230 kV single-circuit double-bundle conductor gen-tie line interconnecting to the SCE Whirlwind Substation with a preferred gen-tie route and route options."[13] Whereas the PSA quantifies impacts associated with construction of the preferred gen-tie route, it fails to provide comparable information for the gen-tie route options. In addition, there are no figures or maps depicting the proposed transmission pole construction sites, access roads, pull and tensioning sites, and other areas where ground disturbance would occur if one of the gen-tie route options is selected.

The fact that the gen-tie line route options are approximately the same length as the preferred gen-tie route does not mean that the impacts would be equivalent. For example, unlike the preferred route, route options 2a and 2b would require road construction through a Joshua Tree Woodland (a sensitive natural community).[14] This would substantially increase the Project's impacts on Western Joshua Trees ("WJTs") and the associated sensitive natural community.

ENVIRONMENTAL SETTING

Survey Data

As discussed in subsequent sections of this document, the Applicant has provided vague, misleading, and contradictory information on areas the Applicant surveyed for biological resources.[15] This makes it impossible to understand which portions of the Project study area[16] were surveyed using methods described in the agency-promulgated protocols, which portions were surveyed by other means (e.g., using binoculars to scan properties without right of entry), and which portions were not surveyed at all.

The PSA acknowledges there are portions of the Project study area that could not be surveyed for sensitive biological resources because the Applicant's biologists did not have right of entry.[17] However, the PSA does not identify the specific areas that Staff believes were not surveyed. This has implications on the adequacy of the information used to describe the Project's environmental setting, which in turn has implications on the adequacy of the PSA's impact assessment and proposed mitigation. To ensure appropriate mitigation and adequate disclosure of the Project's environmental impacts, it is critical that CEC Staff, the resource agencies, and other interested parties have an accurate understanding of areas that were not adequately surveyed so Staff can: (1) identify the specific areas that need to be surveyed prior to initiation of construction

[13] PSA, p. 3-2.
[14] Attachment DR125-1 (TN 261516), Figure DR125-4.
[15] CURE submitted data requests in an attempt to rectify inconsistent information regarding whether the entire Project study area was surveyed for biological resources. The Applicant's responses failed to rectify the inconsistencies. *See* CURE Data Requests Set 1 (TN 258660) and Applicant's responses to data requests 6 through 17 (TN 259338).
[16] The PSA (p. 5.2-1) defines the "study area" as the Project site plus a 1,000-foot buffer around the WRESC site and a 500-foot buffer around the gen-tie alignment.
[17] *For example, see* PSA, pp. 5.2-24 and -153.

activities; (2) incorporate a mechanism for disclosing and mitigating impacts to sensitive resources that occur in those areas.

Rare Plants

Survey Effort

The PSA defines the "study area" as the Project site plus a 1,000-foot buffer around the WRESC site and a 500-foot buffer around the gen-tie alignment.[18] According to the PSA: "[f]ocused rare plant surveys were conducted within the study area by the applicant from April to July 2023, and from April to June 2024."[19] This statement is misleading for the following reasons:

1) The Applicant did not survey the entire study area for rare plants. The PSA states: "[i]t should be noted that there were several areas, particularly surrounding the WRESC, P1, P2 North, P2 South, and Villa Haines sites that were not accessed during focused rare plant surveys and that could support additional occurrences of special-status plant species."[20]
2) The study area for rare plants included a 500-foot buffer around the WRESC site, not a 1,000-foot buffer.[21] Furthermore, substantial portions of the 500-foot buffer area could not be effectively surveyed for rare plants because the biologists had "no right of entry."[22] Some of the areas that could not be surveyed for rare plants would be directly impacted by ground disturbance associated with installation of the gen-tie line.
3) The Applicant has not provided consistent information on portions of the study area that had right of entry, and thus were surveyed according to the California Department of Fish and Wildlife ("CDFW") Botanical Survey Protocols. For example, the maps provided with the Applicant's rare plant survey reports indicate the biologists did not have right of entry to a substantial portion of the P1 site in either 2023 or 2024.[23] According to the Applicant's response to CURE data request 9 (TN 259338), no field work was possible in this area due to lack of property owner permission. However, in response to CEC data request 82, the Applicant provided Figure DR82-A, which depicts the entire P1 site as within a right of entry area, suggesting that all of the P1 site was surveyed.[24]
4) The Applicant provided a confidential map book depicting the locations of special-status plants detected during the 2023 surveys (TN 256491). The map book identifies "Portions of the Survey Area Not Surveyed," thereby suggesting that all other areas were surveyed. In response to CURE data request 8 (TN 259338), the Applicant provided a map book depicting the areas that could not be surveyed because the Applicant did not

[18] PSA, p. 5.2-1.
[19] PSA, p. 5.2-23.
[20] PSA, p. 5.2-193.
[21] WRESC Biological Resources Assessment Report (TN 254816), Table 1. *See also* Willow Rock Sensitive Plant Survey 2024 Addendum (TN 258313), p. 2.
[22] SAFC (TN 254806), Figure 5.2-6. *See also* Sensitive Plants Mapbooks (TN 258884 and TN 258872).
[23] *Ibid*.
[24] *See* Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, FigureDR82-A.

have right of entry. There are numerous inconsistencies between these two map books.[25] For example, the map book in TN 256491 identifies a "not surveyed" area north of the preferred gen-tie route just east of Mojave-Tropico Road, but almost no "not surveyed" areas in the gen-tie study area along Mojave-Tropico Road. This is inconsistent with the map book provided in TN 259338, which shows numerous "no right of entry" areas within this portion of the gen-tie study area, including areas within the 50-foot gen-tie corridor and substantial portions of the gen-tie study area along Mojave-Tropico Road (Figure 2, below).

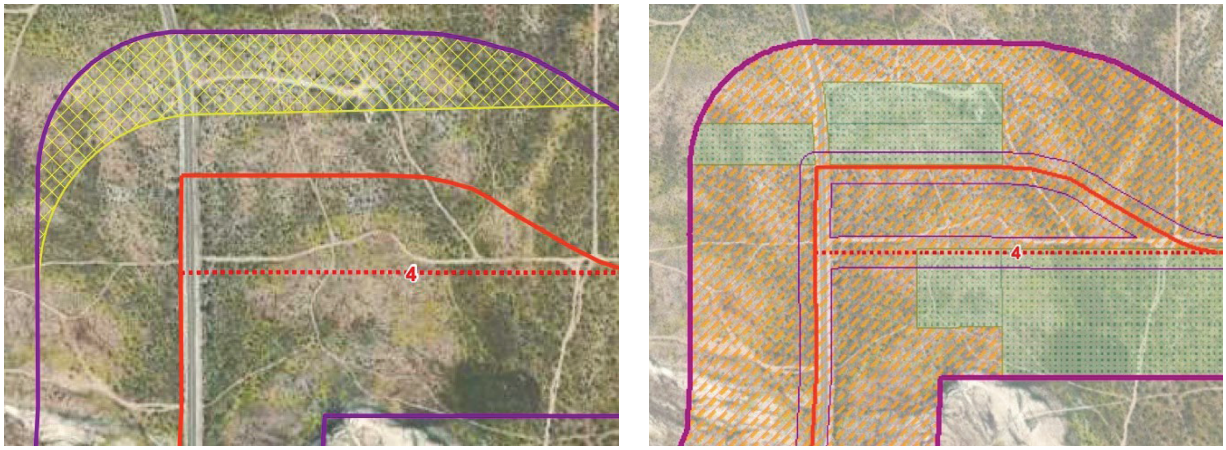

Figure 2. Areas that were not surveyed for rare plants (shaded yellow or orange) in the vicinity of Mojave-Tropico Road. Image on left (provided in TN 256491) suggests the entire study area (bound by thick purple lines) was surveyed except for a sliver of land in the buffer area north of the gen-tie route (red line). Image on right (provided in TN 259338) suggests substantially more un-surveyed areas, including areas within the gen-tie corridor (thin purple lines).

Rare Plant Survey Results

Sagebrush loeflingia (CRPR 2B.2) was detected during the Applicant's surveys. According to the PSA:

> "Approximately 20 individual plants were observed within the western edge of the P1 site north of Dawn Road during 2023 focused rare plant surveys conducted by the applicant (WSP 2024d). It was also observed during surveys in 2024 near Felsite Avenue along disturbed access roads associated with the gen-tie component of the project area (WSP 2024v)."[26]

The information provided in the PSA is inconsistent with the information provided by the Applicant. According to the Online Field Survey Report submitted to the California Natural Diversity Database ("CNDDB"), 1,700 sagebrush loeflingia plants were detected near the

[25] Some of the areas that were "not surveyed" in 2023 were subsequently surveyed in 2024. However, this does not explain many of the inconsistencies between the two map books.
[26] PSA, p. 5.2-58.

western border of the P1 site during the 2023 surveys.[27] Additional sagebrush loeflingia plants were detected within and adjacent to the P1 site during the 2024 surveys,[28] but the Applicant did not quantify the number of plants detected (*see* TN 258313). This issue is compounded by the Applicant's maps, which provide conflicting information on the specific locations of sagebrush loeflingia plants in relation to the P1 site.[29]

Alkali mariposa lily (CRPR 1B.2) was detected during the Applicant's 2023 surveys. Similar to sagebrush loeflingia, the information provided in the PSA is inconsistent with the information provided by the Applicant. According to the PSA: "[a] small population of approximately 20 alkali mariposa lily individuals was observed along Rosamond Boulevard at 95th Street and within a section of the gen-tie component of the project site during 2023 focused rare plant surveys conducted by the applicant (WSP 2024d)."[30] However, according to the Applicant's CNDDB Online Field Survey Report, 82 alkali mariposa lilies were detected at that location.[31]

COC BIO-12 requires compensatory mitigation if more than 10 percent of a CRPR 1 or 2 ranked plant occurrence is subject to loss from project disturbance.[32] Therefore, accurate information on the abundance and spatial distribution of special-status plants that would (or could) be impacted by the Project is critical to ensuring effective mitigation. Consequently, the CEC must establish a mechanism for rectifying: (a) missing and inconsistent information provided by the Applicant; and (b) inconsistencies between the information provided by the Applicant and information provided in the PSA.

Western Joshua Tree

According to the PSA:

> "Western Joshua tree census surveys were initially conducted by the applicant in 2023 and 2024 and field verified in 2024. All surveys were based on the census instructions provided by CDFW (CDFW 2024a). The survey area included the project site plus a 290-foot buffer except for the gen-tie alignments. Most of the area surveyed was accessible via public road ROWs, parcels owned by the applicant, or parcels with right-of-entry agreements. Portions of the gen-tie alignment were not accessible and therefore data could not be collected.[33]… A total of 3,970 western Joshua trees were recorded in the survey area during the 2024 verification census conducted by the applicant (WSP 2024q)."[34]

In biology, the term "census" means a complete count of all individuals. Contrary to what is suggested in the PSA, the Applicant did not conduct a census of all WJTs in the survey area, nor did all surveys adhere to the census instructions provided by CDFW.

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[27] Confidential CNDDB Forms (TN 256485).
[28] *See* Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, FigureDR82-A. *See also* SAFC (TN 254806), Figure 5.2-6. *See also* Sensitive Plants Mapbooks (TN 258884 and TN 258872).
[29] *Ibid.*
[30] PSA, p. 5.2-55.
[31] Confidential CNDDB Forms (TN 256485).
[32] PSA, p. 5.2-243.
[33] PSA, p. 5.2-24.
[34] PSA, p. 5.2-60.

First, not all of the land within the 290-foot buffer around the Project site was included in the Joshua tree verification census. The maps provided by the Applicant indicate some of the buffer areas were not included in the verification census, apparently because the Applicant did not have right of entry. This includes: (a) a parcel south of the southeast corner of the WRESC site, and (b) several parcels adjacent to the P1, P2, and Villa Haines sites.[35]

Second, for portions of the survey area, the WJT census was conducted by using binoculars to scan properties from a distance.[36] The CDFW census instructions entail walking parallel transects to systematically search the entire census area; using binoculars to search for distant WJTs is not an accepted or reliable method for conducting a WJT census. CDFW's census instructions note that small WJTs are often hidden underneath shrubs or at the base of burned trees (making them relatively inconspicuous).[37]

Third, the maps provided in census report[38] omit numerous Joshua trees that occur in the verification census survey area.[39] For example, Figure 3 (below) shows Joshua trees in the buffer area south of the southeast corner of the WRESC site; these trees were included in the Applicant's GIS data but were omitted from the census maps.[40]

Fourth, of the accessible portions of the gen-tie alignment, census data were limited to areas within 50 feet of the gen-tie line.[41] However, substantial portions of many of the proposed pull and tensioning sites (each approximately 100 feet by 300 feet) are located outside of this 50-foot census area. Based on Google Earth imagery and the Applicant's GIS data, some of the pull and tensioning sites contain Joshua trees that were not included in the census report (e.g., pull and tensioning sites immediately west of SR 14, at northwest corner of Villa Haines, and mid-way along Mojave-Tropico Road, among potentially others).[42]

Fifth, Google Earth imagery provides evidence that there are Joshua trees within the gen-tie survey area (i.e., within 50 feet of the gen-tie line), which were not mapped or included in the census. For example, Figure 4 (below) shows Joshua trees that occur along the gen-tie route east of 170th Street W. There are also Joshua trees along the recently modified section of the preferred gen-tie route immediately west of SR 14 (Figure 5, below). These trees lie within a portion of the census survey area with "right of entry," but inexplicably they were not included in the census maps.[43]

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[35] *See* Willow Rock Data Request 6 Response (TN 261314), Attachment DR126-1 (Figures 4-1 through 4-4) and Willow Rock Data Request 4 Response (TN 259736), Attachment DR88-A.
[36] *See* footnote 'a' to Table DR9-2a in Response to Cure Data Requests Set 1 (TN 259338).
[37] California Department of Fish and Wildlife. 2025. Census Instructions [web page]. https://bit.ly/4jK573p
[38] Applicant's response to CEC Data Request Set 6 (TN 261314), Attachment DR126-1, Figures 4-1 through 4-10.
[39] Based on the confidential GIS shapefiles provided to CURE by the Applicant and verified through Google Earth imagery.
[40] *See* Applicant's response to CEC Data Request Set 6 (TN 261314), Attachment DR126-1, Figure 4-2.
[41] *Ibid*, Figures 4-1 through 4-10. The thin purple line on the figures corresponds to a 50-foot buffer around the gen-tie route. Joshua trees that occur outside of this 50-foot buffer, but within the 1,000-foot Project buffer, were omitted from the figures.
[42] *See figures in* Attachment DR125 (TN 261516) for pull and tensioning site locations.
[43] *See* Attachment DR125 (TN 261516), Figures 4-9 and 4-10.

For these reasons discussed above, the data provided by the Applicant, and incorporated into the PSA, do not provide an accurate census of the number of Joshua trees that could be directly or indirectly impacted by the Project.

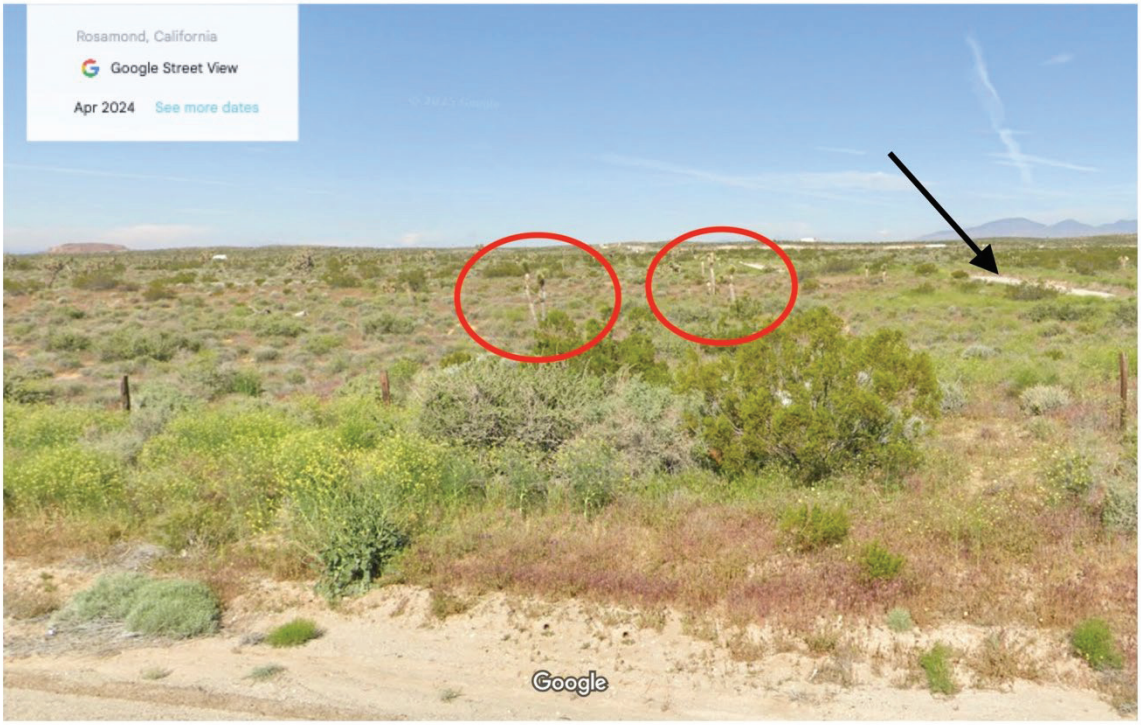

Figure 3. Google Street View from Sierra Highway showing Joshua trees (red circles) in the WRESC site buffer area. Black arrow points to Dawn Road.

Figure 4. Joshua trees along the gen-tie route east of 170th Street W.

Figure 5. Western Joshua trees (red circles) in the 50-foot corridor (approximately bound by yellow lines) for the preferred gen-tie line route west of SR 14.

Swainson's Hawk

The PSA states the following regarding the Applicant's surveys for Swainson's hawks:

> "The survey methods implemented by the Applicant were generally consistent with Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California (CEC and CDFW 2010)."[44]

The PSA's statement is misleading for two reasons. First, the CEC and CDFW (2010) survey protocols state that a qualified raptor biologist should conduct surveys in a manner that maximizes the potential to observe adult Swainson's hawks and nests/chicks via visual and audible cues **within a five-mile radius of the project**.[45] The surveys conducted by the Applicant were limited to the Project site and 0.5-mile buffer.[46] The need to conduct surveys that

[44] PSA, p. 5.2-64.
[45] California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Energy Commission and Department of Fish and Game. p. 4.
[46] PSA, Table 5.2-7.

encompass areas within five miles of a project site is important because the CEC and CDFW (2010) mitigation guidelines identify the need for compensatory mitigation if a project would impact foraging habitat within a five-mile radius of an active Swainson's hawk nests.[47] Because the Applicant did not conduct surveys within a five-mile radius of the Project site, the PSA lacks the data needed to understand the number of Swainson's hawk nests (territories) that would be impacted by the Project.

Second, the Applicant stated that the Swainson's hawk surveys were conducted by driving roads in the Project site and 0.5-mile buffer.[48] Attachment DR66-1, which was provided in response to CURE Data Request Set 1 (TN 259338), contains maps identifying the roads that were driven to conduct the Swainson's hawk surveys. The maps lack credibility. According to the maps:

1) The biologists drove through, and in some instances across, solar arrays.[49] The solar arrays occur on private property without right of entry access.[50]
2) The biologists drove along roads that do not exist (Figures 6 and 7, below).
3) The biologists drove on numerous private roads in areas where no right of entry had been granted.
4) Except for a 0.25-mile long segment of road on the southeast side of the Villa Haines parcel, no surveys were conducted within the 640-acre block of habitat located between 20th Street W (to the east), 30th Street W (to the west), Dawn Road (to the south), and Champagne Ave (to the north).[51] The Applicant proposes the following in this block of habitat: new access roads, a proposed laydown and parking area (i.e., the Villa Haines parcel), a portion of the preferred gen-tie route, gen-tie route alternative 2a, and gen-tie route alternative 2b (eastern and northern segments).

These issues provide strong evidence that the Applicant's Swainson's hawk surveys were far less extensive than suggested, did not cover all areas that could contain nest sites, and were not sufficient to conclude absence of Swainson's hawk nests within the Project site and 0.5-mile buffer. This is important because the CEC and CDFW have determined that Swainson's hawk nests require a 0.5-mile no-disturbance buffer to prevent nest abandonment or forced fledging.[52] If the 0.5-mile buffer cannot feasibly be implemented, take authorization may be necessary to comply with the California Endangered Species Act ("CESA").[53] Furthermore, if there is insufficient evidence to conclude absence of nests within 0.5 miles of the Project site, the

[47] California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Energy Commission and Department of Fish and Game. p. 8.
[48] Willow Rock Swainson's Hawk Survey 2024 Addendum (TN 258312). p. 3.
[49] Willow Rock CURE Data Request Set 1 Response (TN 259338). Attachment DR66-1, Figure DR 66-4.
[50] *Ibid*, Attachment DR8, Figures DR8-13 through 8-15.
[51] Willow Rock CURE Data Request Set 1 Response (TN 259338). Attachment DR66-1, Figure DR 66-1
[52] California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Energy Commission and Department of Fish and Game. p. 7,
[53] Kern County Planning and Natural Resources Department. 2021 Jun. Final Environmental Impact Report for the Raceway 2.0 Solar Project. California Department of Fish and Wildlife Comment 2-N.

Applicant must assume presence and acquire an Incidental Take Permit.[54] Although there is insufficient evidence to conclude absence of nests within 0.5 miles of the Project site, and although it is unlikely that a 0.5-mile no-disturbance buffer would be feasible for the Project (given the construction schedule), the PSA does not require the Applicant to apply for take authorization. As a result, the PSA does not ensure compliance with CESA.

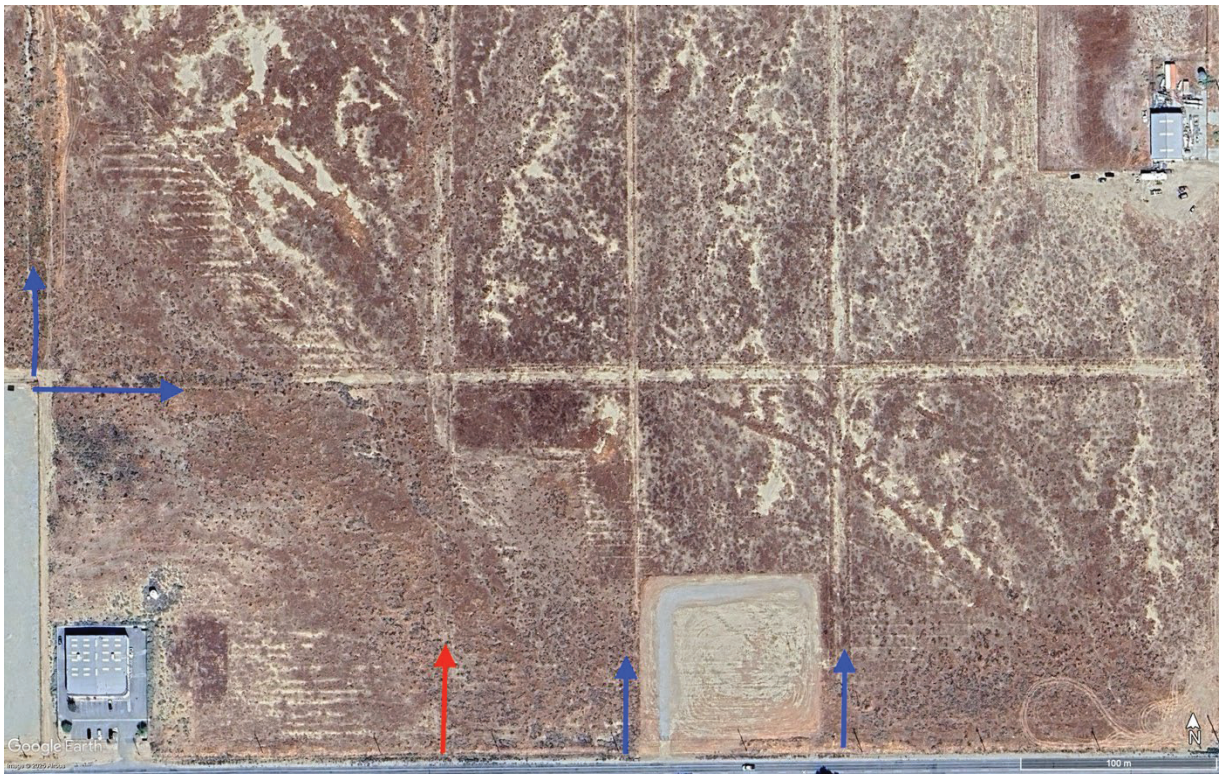

Figure 6. Example of "roads" (overlain with arrows) driven to conduct Swainson's hawk surveys. Rosamond Blvd is at bottom of image. Structure in bottom left corner is approximately 700 feet east of 75th Street W.

[54] *See* California Department of Fish and Wildlife. 2022 Aug 31. Letter to L. Payne, CEC, regarding Applicant's Response to CEC Staff's Issues Identification Report and Proposed Schedule (TN 245782). p. 12.

Figure 7. Google Street View from Rosamond Blvd facing north. Red arrow in the image corresponds with red arrow in Figure 6. Contrary to what is depicted in the Applicant's map (of the Swainson's hawk survey routes), there is no road intersecting Rosamond Blvd at this location.

PROJECT IMPACTS

Habitat Impacts

The PSA determined that the loss of habitat would (or could) have a significant impact on the following species: Crotch's bumble bee, burrowing owl, Swainson's hawk, Le Conte's thrasher, loggerhead shrike, California condor, bald eagle, golden eagle, tricolored blackbird, short-eared owl, long-eared owl, mountain plover, prairie falcon, and northern harrier.[55] The PSA then makes the determination that BIO-14 would "replace habitat lost from the development of the project,"[56] and therefore Project impacts to habitat would be less than significant. As reported in the PSA: "[t]he term 'habitat' refers to the environmental and ecological conditions where a species is found."[57]

There are three fundamental problems with the PSA's reasoning. First, BIO-14 is directed solely at offsetting impacts to habitat for the Crotch's bumble bee and burrowing owl; there are no provisions in BIO-14 that the Habitat Management ("HM") lands acquired by the Applicant

[55] PSA, pp. 5.2-165, -183, -187, -188, and -191.
[56] *For example, see* PSA, p. 5.2-187.
[57] PSA, pp. 5.2-148 and -149.

provide *habitat* for any other species that would (or could) be significantly impacted by habitat loss caused by the Project.

Second, BIO-14 has no geographic restrictions on the location of the HM lands. This has significant implications on the value of the HM lands in conserving special-status species in the Antelope Valley. The issue is most pronounced for the Antelope Valley population of Swainson's hawks, which is geographically isolated from other breeding populations.[58] Accordingly, CEC and CDFW mitigation guidelines for renewable energy projects in the Antelope Valley call for mitigating loss of Swainson's hawk foraging habitat by providing HM lands within the Antelope Valley Swainson's hawk breeding range at a minimum 2:1 ratio for such habitat impacted within a five-mile radius of active Swainson's hawk nest(s).[59] CDFW submitted the following comments on the Revised Draft Environmental Impact Report for the Rosamond Solar Array Project:

> "Requiring that the mitigation occur within the Antelope Valley is important. The CEQA Mandatory Findings of Significance require that a lead agency find that the Project may have a significant effect on the environment if the Project has the potential to '… cause a fish or wildlife population to drop below self-sustaining levels …' The Swainson's hawk population in the Antelope Valley is small and likely to drop below self-sustaining levels if renewable energy development continues without adequate habitat conservation within the Antelope Valley."[60]

Furthermore, because BIO-14 does not establish geographic restrictions on the location of the HM lands, there are no assurances that the HM lands would be located within the geographic range of all species for which BIO-14 is intended to mitigate habitat impacts.

Third, BIO-14 has no restrictions on the habitat types that occur at the HM lands. The Crotch's bumble bee is a generalist species that nests, overwinters, and forages in a wide variety of habitats if conditions are suitable.[61] The burrowing owl is primarily a grassland species, but it also occurs in other open habitat types. The overriding characteristics of suitable habitat for the owl are burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs or taller vegetation.[62] Therefore, the Applicant could satisfy BIO-14 by acquiring an open grassland, which would not provide habitat for the Le Conte's thrasher, long-eared owl, or loggerhead shrike.

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[58] PSA, p. 5.2-112.
[59] California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Energy Commission and Department of Fish and Game. p. 8.
[60] County of Kern. 2014. Final Environmental Impact Report for the Rosamond Solar Array Project. Vol III, Chapter 7 (Response to Comments). California Department of Fish and Wildlife Comment 1-X.
[61] PSA, p. 5.2-207.
[62] Gervais JA, Rosenberg DK, Comrack LA. 2008. Burrowing Owl (*Athene cunicularia*). Pages 218-226 *In:* Shuford WD, Gardali T, 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.

American Badger and Desert Kit Fox

The PSA identifies habitat loss as a primary threat to the American badger and desert kit fox.[63] Although the PSA does not make an explicit determination on the significance of Project impacts on habitat for the American badger and desert kit fox, it makes the determination that BIO-14 "would provide compensatory land to reduce impacts from habitat loss" on these two species.[64] This determination is not justified because BIO-14 does not require the acquisition of HM lands that provide habitat for the American badger and desert kit fox.

Tulare Grasshopper Mouse, Tehachapi Pocket Mouse, San Joaquin Pocket Mouse, Northern Legless Lizard and Coast Horned Lizard

For the Tulare grasshopper mouse, Tehachapi pocket mouse, and San Joaquin pocket mouse, the PSA states that "[a]ny impact on these species would be considered a significant impact if it results in mortality or habitat loss."[65] However, the PSA then makes the contradictory statement that habitat compensation is not required to reduce impacts to these species."[66]

The PSA makes similar contradictory statements regarding impacts to the northern legless lizard and coast horned lizard. First, the PSA states: "[i]mpacts could include mortality due to collisions with vehicles or heavy equipment, loss or degradation of habitat … If present during project activities, impacts to these species would be considered a significant impact under CEQA."[67] However, the PSA then states: "although not required for these species the acquisition of mitigation lands to off-set impacts to burrowing owl (see BIO-14) and other species would further reduce impacts from the proposed project."[68]

The three mice subspecies have a high to very high risk of extinction, both in California and globally, while the northern legless lizard has a moderate to high risk of extinction in California and globally.[69] The primary threat to all four subspecies is habitat loss, fragmentation, and degradation.[70] Therefore, it would be illogical to conclude that Project-related mortality of individuals would be a significant impact, but not Project-related impacts to habitat.

Sensitive Natural Communities and Native Vegetation

Table 5.2-10 in the PSA provides a summary of vegetation community impacts, by Project component. I have the following comments pertaining to Table 5.2-10:

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[63] PSA, pp. 5.2-127 and -128.
[64] PSA, p. 5.2-196.
[65] PSA, p. 5.2-193. [emphasis added].
[66] *Ibid*.
[67] PSA, p. 5.2-171.
[68] PSA, p. 5.2-172.
[69] *See global ranks and state ranks in* PSA, Table 5.2-8.
[70] Williams DF. 1986. Mammalian Species of Special Concern in California. State of California, Resources Agency, Department of Fish and Game. [accessed 2025 Jun 5]. https://bit.ly/45Q8IcA. *See also* Thomson RC, Wright AN, Shaffer HB. 2016. California Amphibian and Reptile Species of Special Concern. California Department of Fish and Wildlife. University of California Press, Oakland, California. [accessed 2025 Jun 5]. https://wildlife.ca.gov/Conservation/SSC/Amphibians-Reptiles

1) The table only identifies impacts associated with the preferred gen-tie route; nowhere does the PSA identify vegetation community impacts associated with the gen-tie route options.
2) The table does not account for vegetation management activities associated with the gen-tie line and transmission poles. The Applicant's response to CURE data request 32 (TN 259338) states: "vegetation management activities associated with the gen-tie corridor will include steps to reduce encroachment of vegetation along the edges of the ROW," and that the Project would entail "clearing of flammable fuels for a minimum 10-foot radius from the outer circumference of certain poles and towers."
3) The PSA acknowledges that when perennial vegetation communities, such as those containing Joshua trees and creosote bush are disturbed, the recovery times for species composition are on the order of decades to centuries at a minimum.[71] Whereas the PSA appears to treat all Project impacts as permanent, Table 5.2-10 mischaracterizes some impacts to scrub communities as "temporary."

Special-Status Plants

According to the PSA:

> "Direct and indirect impacts to plants would be considered significant without mitigation if project activities result in the loss of more than ten percent of the known individuals within an occurrence of a CRPR List 1B or 2 species, such as sagebrush loeflingia and alkali mariposa lily."[72]

There are two flaws with the PSA's analysis. First, the 10 percent threshold used to determine significance of impacts to CRPR List 1B or 2 species is not justified and conflicts with the thresholds of significance established in the PSA.[73] For example, the second threshold listed in the PSA is whether the Project would cause loss or "take" of any special-status species—not whether the Project would cause the loss or "take" of more than 10 percent of the individuals within an occurrence.

Second, COC BIO-12 explains that for the purposes of determining whether compensatory mitigation would be required, "[m]easurement of percent avoidance shall be based on population for perennials and on habitat for annuals (habitat containing the species' microhabitat preferences, such as 'soil types and moist depressions')."[74] BIO-12 further explains that the local population shall be measured by the number of individuals occurring on the Project site or all plants within a 0.25-mile buffer. Therefore, the CEC's ability to effectively implement BIO-12 is dependent on accurate information on the population size of impacted perennials (e.g., alkali mariposa lily), and habitat for annuals (e.g., sagebrush loeflingia). This information is not

[71] PSA, p. 5.2-150.
[72] PSA, p. 5.2-153.
[73] PSA, pp. 5.2-140 and -141.
[74] PSA, p. 5.2-243.

provided in the PSA,[75] nor does BIO-12 incorporate a mechanism for collecting the information prior to impacts to special-status plants.

The PSA determined that impacts to special-status plants would occur if the Project alters local soil conditions and existing hydrologic properties.[76] Sagebrush loeflingia occurs in and adjacent to the P1 site.[77] The Project involves removing vegetation from the P1 site.[78] The P1 site would then be used for construction laydown, storage, and possibly construction of an architectural berm. At a minimum, the Project would alter soil conditions and existing hydrologic properties at the P1 site.[79] If the architectural berm is constructed, impacts to hydrology would extend offsite because offsite flows would be diverted via proposed drainage channels, and rainwater that falls on the north and west sides of the architectural berm would flow to proposed drainage channels along the north and west sides of the berm.[80] Construction activities at the P1 site would have the following impacts on sagebrush loeflingia:

1) The portion of the sagebrush loeflingia population in the P1 site would be directly impacted by vegetation removal and other construction activities. The Applicant has not identified the number of sagebrush loeflingia that occur within the P1 site. This precludes the ability to determine whether direct impacts to sagebrush loeflingia at the P1 site would trigger the compensatory mitigation described under COC BIO-12 (requiring compensatory mitigation if more than 10 percent of the population is subject to loss from Project disturbance).
2) Almost all of the remaining plants in the sagebrush loeflingia population occur along the western border of the P1 site.[81] These plants would be subject to changes in hydrology, dust, and other indirect impacts. Due to the proximity of the plants to the P1 site, it is unlikely that the population will remain viable, but it may take several years for the population to become completely extirpated.

A critical flaw with the PSA's mitigation strategy is that although Staff recognizes that the Project is likely to have significant indirect impacts on special-status plants, there is no mechanism for mitigating those impacts should they cause loss or "take" of the plant (or its habitat). For example, although sagebrush loeflingia could be exposed to long-term indirect impacts associated with the architectural berm, BIO-12 (rare plant mitigation) does not require the Applicant to monitor the fate of the plants to determine whether additional compensatory mitigation is necessary, nor does BIO-12 incorporate a mechanism that would enable the CEC to impose additional mitigation requirements should the sagebrush loeflingia plants succumb to indirect impacts. As a result, BIO-12 does not ensure impacts to special-status plants would be reduced to less than significant levels.

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[75] The PSA (p. 5.2-55) states that a small population of approximately 20 alkali mariposa lily individuals was observed along Rosamond Boulevard, which is inconsistent with the 82 mariposa lilies reported on the Applicant's CNDDB form. Therefore, it is unclear which number would be used to establish the population size.
[76] PSA, p. 5.2-153.
[77] Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, Figure DR82-A.
[78] SAFC ,Vol I, Part A (TN 254806), p. 5.2-41.
[79] *Ibid,* Part B (TN 254805)*,* p. 5.11-10.
[80] *Ibid*, p. 5.15-16.
[81] Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR82-1, Figure DR82-A.

Impacts to California Rare Plant Rank 3 or 4 Species

The PSA states: "[i]f a CRPR 3 or 4 species is locally rare, or the population is at an extreme end of the species range, it would be considered for impacts under CEQA."[82] Mojave monardella, a CRPR 4 species, was detected at the Project site during the 2023 and 2024 rare plant surveys. The PSA does not incorporate compensatory mitigation for impacts to Mojave monardella or other CRPR 4 plants that might be detected during the pre-construction surveys required under BIO-12. This suggests that Staff determined impacts to Mojave monardella and all other CRPR 4 species with potential to occur at the Project site did not need to be considered under CEQA. However, the PSA fails to provide analysis to support that determination. Based on data in the California Native Plant Society's ("CNPS") Rare Plant Inventory, the Project site is located near the western edge of Mojave monardella's geographic range, and the species may qualify as "locally rare" in the Antelope Valley.[83]

Western Joshua Tree

Construction

The PSA states:

> "Directs impacts to western Joshua tree would occur from permanent removal or relocation of individual trees. Under Option 1 – Without Berm, the applicant has determined that a maximum of 1,158 western Joshua trees would require permanent removal and 249 trees would be relocated. Under Option 2 - With Berm, the applicant has identified a maximum of 1,625 trees for permanent removal and 266 for relocation."[84]

These numbers were derived from the Applicant's Draft Preliminary Conceptual Western Joshua Tree Relocation Plan and only account for the Joshua trees that would be directly impacted at the WRESC, P1, and P2 sites.[85] The PSA fails to identify the number of Joshua trees that would need to be removed or relocated to enable construction of the Project's gen-tie line and associated access roads.

According to the PSA (Table 5.2-6), 1,491 Joshua trees occur at the WRESC site, while 501 and 844 Joshua trees occur at the P1 and P2 sites, respectively. Under Project Option 2 (with berm), all Joshua trees at the WRESC, P1, and P2 sites would be directly impacted during construction.[86] This equates to 2,836 trees. However, according to the PSA at page 5.2-155, only a maximum of 1,891 trees would be directly impacted (i.e., require removal or relocation) under Project Option 2 (with berm). I was unable to identify the source of this discrepancy (of 945 trees). One explanation might be that PSA Table 5.2-6 includes trees in the "survey area," which

[82] PSA, p. 5.2-25.
[83] California Native Plant Society, Rare Plant Program. 2025. Rare Plant Inventory (online edition, v9.5.1). [Accessed 27 May 2025]. https://www.rareplants.cnps.org.
[84] PSA, p. 5.2-155.
[85] Willow Rock Data Request Set 4 Response (TN 259736), Attachment DR92-1.
[86] *See* Applicant's Draft Preliminary Conceptual Western Joshua Tree Relocation Plan, Figure 5. (Attachment DR92-1 provided with Willow Rock Data Request Set 4 Response, TN 259736).

included a 290-foot buffer around portions of the WRESC, P1, and P2 sites.[87] However, based on the figures provided in the Applicant's Supplemental Joshua Tree Census Report (Attachment DR126-1; TN 261314), there are nowhere near 945 trees in the 290-foot buffer around the WRESC, P1, and P2 sites.[88] This suggests an error with the PSA's impact assessment, census data, or both.

CESA applies to every life stage of the listed species, including the seed bank.[89] Seeds of WJTs are dispersed by scatter-hoarding rodents. Vander Wall et al. (2006) documented 290 feet as the maximum distance of WJT seed dispersal by rodents.[90] As a result, CDFW has determined that construction activities within 290 feet of individual WJTs may cause take of the species.[91] Although the PSA identifies the number of WJTs that would be removed or relocated from the WRESC, P1, and P2 sites, it does not identify the number of WJTs that occur within 290 feet of proposed ground disturbance activities. This omission, along with the lack of information on the number of WJTs that would be impacted by construction of the gen-tie line, preclude knowledge of the total number of WJTs that could be taken by the Project.

Under CESA, issuance of an incidental take permit requires adoption of measures to minimize and fully mitigate impacts of the proposed taking. For projects under the jurisdiction of the CEC, the certification authorizing the construction and operation of the facility issued by the CEC acts as the incidental take permit and includes all required mitigation and avoidance measures.[92] In this case, the CEC cannot make a determination on whether the Project's impacts would be minimized and fully mitigated without first understanding (and disclosing) the total number of WJTs that would (or could) be taken by the Project.

Noise Impacts

According to the PSA: "[t]he [unspecified] report indicates that noise levels during daily operations would be consistent and be no greater than 60 dBA at 1,500 linear feet from the Project Area."[93] This statement is inconsistent with the results of the Applicant's operational noise modeling. Specifically, Figure 5.7-6 in the Supplemental Application for Certification (TN 254805) shows the 60 dBA operational noise contour level extending significantly further than 1,500 feet, especially in areas east and southeast of the WRESC site.

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[87] Although the Supplemental Joshua Tree Census Report (Attachment DR126-1; TN 261314) states the study area included the Project site and a 290 buffer around all project components except for the gen-tie transmission line alignments, the figures that accompany the report suggest portions of the study area were inaccessible to the surveyors because right of entry had not been granted.
[88] *See* Attachment DR126-1 (TN 261314).
[89] Kern County Planning and Natural Resources Department. 2021 Jun. Final Environmental Impact Report for the Raceway 2.0 Solar Project. California Department of Fish and Wildlife Comment 2-E.
[90] Vander Wall SB, Esque T, Haines D, Garnett M, Waitman BA. 2006. Joshua tree (*Yucca brevifolia*) seeds are dispersed by seed-caching rodents. Ecoscience 13(4):539-543.
[91] Kern County Planning and Natural Resources Department. 2021 Jun. Final Environmental Impact Report for the Raceway 2.0 Solar Project. California Department of Fish and Wildlife Comment 2-E. *See also* California Department of Fish and Wildlife. 2022 Aug 31. Letter to L. Payne, CEC, regarding Applicant's Response to CEC Staff's Issues Identification Report and Proposed Schedule (TN 245782).
[92] PSA, pp. 5.2-131 and -132.
[93] PSA, p. 5.2-162.

The PSA's analysis of impacts to "common wildlife" states the following: "[s]pecific conditions related to blasting would be required for other species and would include seasonal timing, pre-construction surveys, scare charges or warning horns, species relocation, and monitoring."[94] The PSA fails to identify the "other species" that would require specific conditions related to blasting. Furthermore, none of the COCs require seasonal timing of blasting, scare charges or warning horns, species relocation (except for Crotch's bumble bee nests), and monitoring as mitigation for blasting.

Special-Status Birds

The PSA provides the following analysis of Project impacts on special-status birds:

> "Any project related impact that results in the **loss of nesting habitat**, disturbance of breeding behavior, destruction of nests or eggs, exposure to herbicides or other hazardous materials, and mortality or injury to individual birds would be considered a significant impact."[95]

The PSA adopts one COC to address the Project's permanent impacts to avian habitat: BIO-14. Whereas the Project would result in the loss of nesting habitat for several special-status bird species (e.g., Swainson's hawk, Le Conte's thrasher, loggerhead shrike), BIO-14 only requires habitat compensation for impacts to habitat for the burrowing owl. As a result, the loss of nesting habitat for other special-status birds remains potentially significant.

Swainson's Hawk

Bloom et al. (2023) stated the following in their review of the Swainson's hawk nesting population in the Antelope Valley:

> "While the population has grown in recent years, it is under increasing pressure from the conversion of nesting and foraging habitat to solar-energy facilities, residential housing, wind farms, and other development. These landscape-level changes in the Antelope Valley are incompatible with continued Swainson's Hawk nesting and foraging. Along with the diminishing availability of water in the Mojave basin and climate change, these factors have cumulative and compounding effects, potentially setting the stage for a significant and rapid population decline. Creation of reserves dedicated to the conservation of both foraging and nesting habitat for nesting and migrating Swainson's Hawks in the Antelope Valley should include both native desert and alfalfa components and be located as close to nesting territories and existing reserves as possible."[96]

The PSA states:

> "Construction of the WRESC would permanently remove between 88.8 and 122.2 acres of native and non-native vegetation communities and other landforms and

[94] PSA, p. 5.2-162.
[95] PSA, p. 5.2-178. [emphasis added].
[96] Bloom PH, Barton RG, Kuehn MJ. 2023. Swainson's Hawk nesting population in the Antelope Valley of the western Mojave Desert, California. Western Birds 54:32–43.

> between 163.5 and 117.3 acres of temporary impacts depending on which Option 2 - With Berm [*sic*] is constructed. Some of this habitat could be used by Swainson's hawks for foraging, although the proximity to the Highway may limit foraging to some degree. This species is currently occupying trees along rural roads in the Antelope Valley and may tolerate some level of disturbance."[97]

It is misleading for the PSA to suggest that the Project would impact habitat that "could be used by Swainson's hawks for foraging." The fact that Swainson's hawks were "observed foraging on site" is definitive evidence that the habitat is used for foraging.[98]

The PSA determined that the permanent loss of Swainson's hawk foraging habitat would be considered a significant impact.[99] The PSA further determined that BIO-14 would reduce the impact to a less than significant level.[100] The PSA's determination is not supported because BIO-14 does not require the Project owner to obtain HM lands that: (a) provide foraging habitat for Swainson's hawks; and (b) are located in the Antelope Valley near nesting territories. As discussed previously, CEC and CDFW mitigation guidelines for renewable energy projects in the Antelope Valley call for mitigating loss of Swainson's hawk foraging habitat by providing compensatory foraging habitat within the Antelope Valley.

Special-Status Mammals

The PSA provides the following analysis of Project impacts to the Tulare grasshopper mouse, Tehachapi pocket mouse, and San Joaquin pocket mouse:

1) "Because of their ecology it is likely that some of these species would be subject to mortality during construction should they be present in the disturbance footprint. CEC staff has proposed a series of measures to reduce mortality but acknowledge it would not be practical to attempt any large-scale trapping or relocation efforts for these species."[101]
2) "Any impact on these species would be considered a significant impact if it results in mortality or habitat loss."[102]

Given these two statements, the only possible determination would be that Project impacts would be potentially significant and unavoidable (i.e., because it would be impossible to avoid mortality or habitat loss). However, the PSA makes the determination that impacts would be "less than significant with mitigation incorporated."[103] In addition, the PSA makes the determination that habitat management land acquisition would not be required to reduce impacts,[104] which conflicts with the PSA's statement that habitat loss would be considered a significant impact.

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[97] PSA, p. 5.2-187.
[98] *See* WRESC Biological Resource Assessment Report, Table 10 (TN 254816). *See also* Willow Rock Biological Resources Report 2024 Addendum, Table 11 (TN 258316).
[99] PSA, p. 5.2-187.
[100] *Ibid.*
[101] PSA, p. 5.2-193.
[102] *Ibid.*
[103] PSA, p. 5.2-192.
[104] PSA, p. 5.2-193.

Erosion and Sedimentation

The PSA identified erosion and sedimentation as a potentially significant impact to several biological resources, including vegetation, invertebrates, jurisdictional waters, Joshua trees, and other special-status plants. The PSA then determined that implementation of BIO-24 would reduce potentially significant impacts to jurisdictional waters and habitats.[105] For other sensitive biological resources that could be impacted by erosion and sedimentation, the PSA determined that implementation of the project SWPPP [Storm Water Pollution Prevention Plan required under WATER-1] and WATER-2 would reduce potentially significant impacts.[106] However, WATER-1 and WATER-2 merely require preparation of plans, which have been deferred, and for which no performance standards have been established. The verification measures for both WATER-1 and WATER-2 include notifying the CPM of water quality violations or "non-compliance."[107] However, neither COC requires remedial actions for violations or instances of non-compliance. Consequently, impacts associated with erosion and sedimentation remain potentially significant.

Cumulative Impacts

Cumulative Impacts to Habitat

The PSA determined that the Project would not contribute to cumulatively considerable impacts from the permanent or temporary conversion of habitat. The PSA provides the following rationale for this determination:

1) The loss of habitats from Project construction would be mitigated through implementation of BIO-14 (Habitat Management Land Acquisition or Crotch's Bumble Bee and Western Burrowing Owl), which would fully off-set the impacts and conserve important habitat in the region.[108]
2) Temporary impacts to scrub communities would be off-set through a combination of the land acquisition required under BIO-14 and BIO-8, which requires the basic restoration of long-term temporary work and staging areas to control the spread of invasive weeds.[109]

There are several problems with the PSA's rationale, as described below.

First, the PSA's cumulative impacts analysis is limited to the area within 8 miles of the WRESC site. Therefore, mitigation designed to "fully offset" the Project's contribution to cumulative impacts to "important habitat in the region" must be implemented within the same area analyzed for cumulative impacts. The PSA, however, does not establish any geographic limits on the location of the habitat acquisition required under BIO-14. Therefore, if the Applicant acquires habitat management land in San Bernardino County (for example), that land would not mitigate the Project's contribution to cumulative impacts *in the Antelope Valley*.

[105] PSA, p. 5.2-202.
[106] *For example*, PSA, p. 5.2-154.
[107] PSA, p. 5.16-16.
[108] PSA, p. 5.2-206.
[109] PSA, p. 5.2-206.

Second, BIO-14 only requires the Applicant to acquire replacement habitat for the Crotch's bumble bee and burrowing owl. There are no assurances that the HM lands would be reasonably likely to support the other special-status species that would be subject to significant cumulative impacts.

Third, the PSA does not establish any restrictions on the habitat types acquired under BIO-14. Therefore, the statement that land acquired under BIO-14 would offset impacts to scrub communities is unfounded.

Fourth, BIO-8 does not offset impacts to scrub communities because there are no requirements that "temporarily" impacted scrub communities be restored. Indeed, BIO-8 explicitly states: "[b]ecause temporary impacts are being considered permanent to offset impacts to listed species the requirements for a successful transition to native scrub communities is not required."[110]

Cumulative Impacts to Rare Plants

The PSA discusses cumulative impacts to the Joshua tree. The PSA then states:

> "In addition, the small number of other sensitive plants that would be potentially impacted by the project would be mitigated through seed collection and other measures that would contribute to their preservation in the region. Impacts to special status plants would not be cumulatively considerable."[111]

The PSA's rationale is unfounded because none of the proposed COCs require seed collection or other measures that would contribute to the impacted plant's preservation in the region.[112] Whereas BIO-12 requires compensatory mitigation if more than 10 percent of an CRPR 1 or 2 ranked plant occurrence is subject to loss from Project disturbance, BIO-12 does not require acquisition of compensation land "in the region," nor does it require that the compensation land provide habitat for the plant(s) impacted by the Project.[113] Furthermore, if each project developer is allowed to eliminate up to 10 percent of a plant occurrence (defined in the PSA as all plants within a 0.25-mile buffer), it is easy to see that these incremental losses could become cumulatively significant.

[110] PSA, p. 5.2-230.
[111] PSA, pp. 5.2-206 and -207.
[112] Item 9 of BIO-12 requires the Applicant to develop an appropriate propagation and relocation strategy "if salvage and relocation is not believed to be feasible for special-status plants." However, salvage and relocation are not required under BIO-12.
[113] *See* PSA, p. 5.2-244 (allowing acquisition of land that is not occupied by the target species).

Cumulative Impacts to Birds

The PSA states that the Swainson's hawk is present in the region and has been subject to widespread habitat loss from past, present, and future projects.[114] The PSA then states: "[w]ith the implementation of staff's proposed measures for habitat acquisition the project is not likely to result in cumulatively considerable impacts to Swainson's hawk." This determination is unfounded because BIO-14 does not require HM lands that provide habitat for Swainson's hawks, nor do the HM lands need to be located in an area that would support conservation of the Swainson's hawk subpopulation that occurs in the Antelope Valley.

CONDITIONS OF CERTIFICATION

Significance of Project impacts

The PSA provides contradictory information on the significance of Project impacts on biological resources. The PSA first states: "[s]ignificant and unavoidable impacts to any biological resource are not expected to occur."[115] However, the PSA subsequently states: "even with the implementation of these [mitigation] measures, operational impacts from the proposed project would remain significant and unavoidable for many resources."[116]

Deferral of Mitigation

Many of the COCs (mitigation measures) proposed in the PSA require the Applicant to develop a "plan" for mitigating the Project's significant impacts. This approach constitutes deferred mitigation. The following COCs require the future formulation of mitigation plans:

- BIO-6 (Biological Resources Mitigation Implementation and Monitoring Plan)
- BIO-7, Measure 11 (Wildlife Protection and Relocation Plan)
- BIO-8 (Habitat Restoration and Vegetation Management Plan)
- BIO-9 (Integrated Weed Management Plan)
- BIO-10 (Invasive Species Management Plan)
- BIO-12, Measure 10 (Western Joshua Tree Relocation Plan)
- BIO-13 (Crotch's Bumble Bee Mortality Reduction and Relocation Plan)
- BIO-16, Measure 5 (Raven Monitoring, Management, and Reporting Plan)
- BIO-17 (Nesting Bird Management Plan)
- BIO-19 (BUOW Mortality Reduction Plan; BUOW Burrow Replacement Plan)
- BIO-22, Measure 3 (American Badger and Desert Kit Fox Eviction Plan)

Deferring mitigation plans until after completion of the environmental review process—as proposed in the PSA—does not ensure Project impacts would be reduced to less than significant levels. Among other reasons, deferring the mitigation plans precludes the ability to evaluate the sufficiency of those plans, and thus, whether they would mitigate Project impacts to less than significant levels.

[114] PSA, p. 5.2-207.
[115] PSA, p. 5.2-215.
[116] PSA, p. 5.2-215.

CEQA specifically prohibits deferral of mitigation measures. However, the specific details of a mitigation measure may be developed after project approval if the lead agency: (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure, and (4) demonstrates in the record that a detailed description of the mitigation measure(s) was impractical or infeasible during the Project's environmental review phase.[117] The PSA fails to satisfy these requirements for the following reasons:

1) The PSA does not commit the CEC to the mitigation. Preparation of a "plan" is not mitigation as defined in the CEQA statutes.
2) The PSA fails to adopt specific performance standards for several of the mitigation measures that require preparation of a plan. For example, the PSA does not establish any performance standards for the Raven Plan or Western Joshua Tree Relocation Plan.
3) Most of the mitigation measures describe the types of actions that could be implemented as mitigation. However, without accompanying performance standards, it is not possible to evaluate whether the actions would be effective.
4) Finally, the PSA fails to demonstrate that a detailed description of the mitigation measure was (or is) impractical or infeasible during the Project's environmental review phase.

BIO-6 (Biological Resources Mitigation Implementation and Monitoring Plan)

Item 7 in BIO-6 requires the Applicant to submit "before and after" aerial photographs that document the total amount of ground disturbance caused by construction of the Project. The "final accounting" of ground disturbance would be used to determine whether more or less habitat compensation is necessary.[118] This COC is appropriate given the numerous factors that could affect the ultimate amount of ground disturbance associated with Project construction and operation.

BIO-14 requires the Applicant to purchase a minimum of 843 acres of conservation bank credits, or provide for both the permanent protection and management of 843 acres of Habitat Management lands, *before starting Project Activities* (or within 24 months of the effective date of the Projects Certification if Security is provided).[119] However, the final accounting of the Project's total ground disturbance would not occur until Project construction is complete[120] (approximately 3 to 5 years later). BIO-14 does not incorporate a provision for the "final accounting" mandated in BIO-6, nor does it incorporate an enforcement mechanism that ensures additional habitat compensation is provided if the total amount of ground disturbance exceeds the PSA's estimate. As a result, the PSA fails to provide sufficient assurances that the Project's impacts to habitat are fully mitigated.

[117] Cal Code Regs. tit. 14 § 15126.4.
[118] PSA, p. 5.2-223.
[119] PSA, p. 5.2-254.
[120] PSA, p. 5.2-224.

BIO-7 (General Impact Avoidance and Minimization Measures)

BIO-7 states: "[a]ny wildlife encountered during construction shall be allowed to leave the construction area unharmed."[121] However, BIO-7 also states: "[a]ll construction sites, laydown areas, and parking locations shall be fenced to prevent potential access to the site by small animals including desert tortoise."[122] If fencing is installed to prevent small animals from entering the construction area, it would also prevent small animals from leaving the construction area unharmed.

BIO-8 (Habitat Restoration and Vegetation Management Plan)

BIO-8 requires preparation of a Habitat Restoration and Vegetation Management Plan ("HRVMP").[123] The PSA establishes two success criteria for BIO-8:

1) "After five years upland areas shall be dominated by annuals, forbs, and low growing perennials. Plants with a high threat rate shall not exceed 5 percent (except for brome or Mediterranean grass)."[124]
2) "Any new weed species not currently present in the project area prior to construction shall be eradicated (see BIO-9 and BIO-10)."[125]

The two success criteria appear to conflict: one allows 5 percent cover of invasive plants while the other requires eradication. Furthermore, a success criterion that allows 5 percent cover of an invasive plant with a high threat rating is inconsistent with the stated goal of the HRVMP, which is to "prevent the establishment of highly invasive controllable weeds such as Russian thistle and Sahara mustard."[126] The goal is appropriate: if an invasive plant (weed) is "controllable" and is not currently present in areas that would be disturbed by the Project, then eradication of that plant would be feasible when the infestation is small. Five percent cover of the invasive plant is not an appropriate success criterion because it allows establishment of a source population that will multiply and spread.

BIO-9 (Integrated Weed Management Plan)

BIO-9 requires the Project owner to develop an Integrated Weed Management Plan ("IWMP") that identifies goals (e.g., eradication, suppression, or containment) for each weed species.[127] The PSA cannot point to BIO-9 as evidence that impacts from weeds would be less than significant, while also allowing the Project owner to decide the specific goals of BIO-9. In weed

[121] PSA, p. 5.2-225.
[122] PSA, p. 5.2-224.
[123] PSA, p. 5.2-231.
[124] PSA, p. 5.2-231.
[125] PSA, p. 5.2-232.
[126] PSA, p. 5.2-231.
[127] PSA, pp. 5.2-233 and -234.

management, the appropriate goal for each weed species is dictated by baseline conditions, the threat level, and what is achievable within the context of the project site:[128]

a) *Eradication* is the complete removal of an invasive plant species (including reproductive propagules) from a defined area. Eradication is especially feasible when an infestation is small. Therefore, eradication should be the goal for any new weed species that is not currently present in the Project area.

b) *Containment* is defined as any action taken to prevent establishment or to control a plant species beyond a predefined area known as the *containment unit*. The containment unit comprises the area where the species currently exists (occupied zone) plus a surrounding buffer zone that is free from plants but can receive propagules (such as seeds). Containment is typically undertaken when eradication fails or is infeasible.[129]

c) *Suppression* involves limiting invasive plant control activities to portions of an infestation that directly threaten high-value conservation targets (such as areas supporting a high-valued species, community, ecosystem, or culturally significant asset). Suppression is commonly practiced when an invasive species is widespread and abundant and there is little hope of eradication.

Measure 10 in BIO-9 states: "[w]eed infestations shall be treated at a minimum of once annually until eradication, suppression, or containment goals are met." BIO-9 does not identify the suppression or containment goals; however, stopping weed treatments when those unspecified goals are met is not justified. The problem with suppression and containment is that they must continue indefinitely unless the means to suppress and ultimately eradicate the core infestation become available.[130]

BIO-9 states: "[t]he IWMP shall be implemented prior to any site mobilization, and during the construction, operation, and decommissioning phases of the project."[131] However, many of the subsequent conditions listed in BIO-9 are directed solely at the construction and operation phases of the Project. For example, condition 1 requires a weed map that is updated at least once a year *during the construction phase*, while condition 8 requires the IWMP to specify methods to survey for weeds *during construction and operation.*

BIO-9 states: "[t]he IWMP shall contain all required measures to identify, control, and manage existing and potential weed infestations on the project site."[132] BIO-9 must provide a clear definition of "the project site" so all parties have a common understanding of where weed mitigation measures are required. Containment entails control measures that prevent a weed from spreading beyond a predefined area, and it requires monitoring outside of the predefined area to confirm control efforts have successfully contained the plant. Therefore, if containment is the

[128] *See* U.S. Fish and Wildlife Service and California Invasive Plant Council. 2018. Land Manager's Guide to Developing an Invasive Plant Management Plan. Cal-IPC Publication 2018-01. National Wildlife Refuge System, Pacific Southwest Region, Inventory and Monitoring Initiative, Sacramento, CA. California Invasive Plant Council, Berkeley, CA. [accessed 7 June 2025]. www.cal-ipc.org.
[129] *Ibid*, p. 33.
[130] *Ibid*, p. 33.
[131] PSA, p. 5.2-233.
[132] PSA, p. 5.2-233.

goal for a particular species, the area subject to the IWMP would need to extend beyond the Project site.

Measure 7 in BIO-9 states: "[t]he IWMP shall specify guidelines for any soil, sand, gravel, mulch, or fill material to be imported into the project area, transported from site to site within the Project area, or transported from the Project area to an off-site location, to prevent the introduction or spread of weeds to or from the Project area."[133] The PSA does not identify any potential actions that could be incorporated into the guidelines. This is a significant omission because preventing the introduction or spread of weeds to or from the Project area does not appear feasible given the amount of soil and rock movement associated with the Project (especially if Project Option 1-without berm is selected).

BIO-12 (Special-Status Plant Avoidance Measures)

Pre-construction Surveys

BIO-12 requires pre-construction surveys that adhere to the current CDFW botanical field survey protocols. These surveys would be required in any area that has not previously been surveyed within three years.[134]

The Applicant stated that some areas could not be surveyed for biological resources due to lack of access (parcels with no right of entry).[135] As discussed previously, the Applicant has provided inconsistent information on the portions of the Project study area that could be surveyed for rare plants. Furthermore, it appears that in some areas the surveys were conducted by using binoculars to scan the terrain from a distance, which is not a reliable method for rare plant detection.[136] For these reasons, BIO-12 must clearly articulate the areas requiring pre-construction surveys adhering to the current CDFW botanical field survey protocols.

The Applicant's biologists recorded a population of alkali mariposa lily along the preferred gen-tie route. The CNDDB has records of two additional alkali mariposa lily populations (or occurrences) along the preferred gen-tie route. At least one of these populations appears to be located within an area that would be directly impacted by transmission pole installation and a pull and tensioning site.

It is unclear if the Applicant's biologists surveyed the two locations along the preferred gen-tie route where alkali mariposa lily has previously been detected. However, the CDFW botanical field survey 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

[133] PSA, p. 5.2-235.
[134] PSA, p. 5.2-242.
[135] Applicant's response to CURE Data Request 6 (TN 259338).
[136] *See pp. 12-13 of* Biological Resources Report 2024 Addendum (TN 258316). "Desert tortoise surveys were conducted in concert with sensitive plant surveys and burrowing owl surveys … For habitat where biologists could not safely survey or gain permission to access, such as private property, surveys were conducted by meticulously scanning the project area using binoculars."

a location, particularly if adverse conditions are present."[137] Therefore, BIO-12 should be amended to require pre-construction surveys in all areas with CNDDB occurrences (both processed and unprocessed records), irrespective of whether those areas have been surveyed within the previous three years.

Avoidance Measures

BIO-12 states: "[w]here feasible, any special status plant shall be protected by a 50-foot non-disturbance buffer."[138] However, the PSA does not provide evidence or analysis justifying the sufficiency of a 50-foot buffer in preventing significant impacts to special-status plants, nor does BIO-12 incorporate performance standards that would ensure efficacy of the 50-foot buffer. The buffer size needed to protect special-status plants from indirect impacts is site- and species-specific, and it requires: (1) identifying risk factors and potential impacts to the species of concern, and (2) determining the permeability of the project-wildland boundary to vectors of those risk factors.[139] Although no bright line rule exists, based on my review of relevant scientific literature and consultations with other experts, 200 feet is the ***absolute minimum*** set-back distance needed to protect a special-status plant.[140]

Compensatory Mitigation

Measure 2 in BIO-12 includes the following requirement for compensatory mitigation:

> "the project owner shall mitigate impacts to any state or federally listed plants that are subject to disturbance and if more than 10 percent of an CRPR 1 or 2 ranked plant occurrence is subject to loss from project disturbance where direct or indirect effects to soils, vegetation, or water transport could affect the species. The local population shall be measured by the number of individuals occurring on the project site or all plants within a 0.25-mile buffer shall be considered part of the occurrence. Measurement of percent avoidance shall be based on population for perennials and on habitat for annuals (habitat containing the species' microhabitat preferences, such as 'soil types and moist depressions')."[141]

BIO-12 appears to incorporate the assumption that Project impacts to 10 percent of a CRPR 1 or 2 ranked plant occurrence would be less than significant because 90 percent of the occurrence would remain unaffected. There are two problems with that assumption. First, there is no mechanism for ensuring permanent protection of the remaining plants, many of which may be located on offsite lands controlled by other parties and outside of the CEC's jurisdiction. Second, if the Applicant directly impacts 10 percent of the population (or occurrence), there is a high probability that many of the remaining plants in the population would be subject to indirect

[137] California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 7.
[138] PSA, p. 5.2-243.
[139] *See review provided in:* Conservation Biology Institute. 2000. Review of potential edge effects on the San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*). Unpublished report prepared for Ahmanson Land Company, West Covina, California, by CBI, San Diego California.
[140] *Ibid*.
[141] PSA, p. 5.2-243.

impacts, which may take years to manifest. Whereas BIO-12 states that mitigation would be required for both direct and indirect impacts, it fails to incorporate a mechanism (e.g., long-term monitoring) for assessing the viability of "avoided" plants to determine whether they have been indirectly impacted, and therefore additional mitigation is required.

Measures 3 through 7 in BIO-12 establish numerous requirements pertaining to the compensatory mitigation (e.g., selection criteria, approval procedures, funding). BIO-12 fails to establish a timeline for the completion of these measures, which makes them uncertain and unenforceable.

Measure 3 outlines selection criteria for the compensatory mitigation. In lieu of acquiring habitat occupied by the target plant species, the measure allows the Project owner to "acquire habitat for which occupancy by the target species has not been documented, if the proposed acquisition lands are adjacent to occupied habitat." A critical problem with this approach is that there are no assurances the land containing the target species would be managed for the protection of that species. For example, even if the Project owner is able to provide evidence that acquisition of unoccupied lands would improve the defensibility and long-term sustainability of the occupied habitat, there are no performance standards for the mitigation, and no mechanism for preventing subsequent destruction or degradation of the occupied habitat (thereby rendering the mitigation ineffective).

Based on the PSA's analysis, an avoidance buffer of 50 feet is needed to protect a special-status plant from significant indirect impacts. This suggests that acquiring unoccupied habitat would only be an effective mitigation strategy if the unoccupied habitat is within 50 feet of the occupied habitat. However, BIO-12 does not establish standards for the distance between the occupied habitat and the "adjacent" acquisition lands.

BIO-12 establishes three categories of land that would be acceptable for rare plant compensation. Each category promotes net loss of the target plant and its habitat. As discussed in CNPS's mitigation policy:

> "Of the five mitigation types in the California Environmental Quality Act, the California Native Plant Society fully supports those which avoid net reduction of population size or species viability… In most instances off-site compensation does not fully reduce impacts to an insignificant level because a net loss of individuals or habitat that supports a natural self-sustaining rare plant population results… the acquisition and permanent protection of an alternative parcel does not alter the fact that the loss of the initial site brings the rare habitat and species one step closer to ultimate extinction."[142]

Monitoring

Measure 8 in BIO-12 pertains to monitoring of plants that are salvaged and transplanted. This measure appears to have been written for another project because it references "future logging"

[142] California Native Plant Society. 1991 (rev 1998). Policy on Mitigation Guidelines Regarding Impacts to Rare, Threatened, and Endangered Plants. 17 p.

and none of the COCs require plant salvage and translocation (except for Joshua tree, which is addressed in Measure 10). Measure 8 needs to be revised to incorporate monitoring requirements for: (a) the compensation lands required under Measure 2, including monitoring of the adjacent occupied habitat if the Project owner acquires unoccupied habitat as mitigation; and (b) "avoided" special-status plants that may be subject to indirect Project impacts.

Western Joshua Tree

Measure 10 in BIO-12 pertains to the Western Joshua Tree Relocation Plan and mitigation fee. Although the PSA states portions of the gen-tie alignment were not accessible and therefore data could not be collected,[143] the PSA does not incorporate a mechanism (e.g., additional surveys) that would account for impacts to WJTs in areas that were not surveyed.

Measure 10 concludes by stating:

> "At the completion of relocation, the project owner shall conduct annual monitoring of each relocated tree for a period of 3 years. An annual status report shall be submitted to the CPM and CDFW by January 31 of the following year. Each report shall include a health assessment of each relocated tree (with unique identifiers), a description of current habitat conditions (including any new disturbances), and representative photos and maps."[144]

The PSA fails to explain the relevance of the monitoring and how the monitoring results would affect the mitigation requirements. This issue is exacerbated by the lack of performance standards for the relocated trees. The Western Joshua Tree Conservation Act (section 1927.3) states that with respect to relocation of WJTs, the permittee shall implement measures to assist survival of relocated trees and to comply with any other reasonable measures to facilitate successful relocation and survival. The details of the final Western Joshua Tree Relocation Plan required under BIO-12 are deferred, and the COC lacks any specific performance standards to support the conclusion that BIO-12 would adequately mitigate the Project's impacts on WJTs.

BIO-13 (Crotch's Bumble Bee Avoidance Measures)

BIO-13 defers formulation of the Crotch's Bumble Bee Mortality Reduction and Relocation Plan. However, BIO-13 stipulates:

> "The plan shall identify nest relocation techniques and locations where Crotch's bumble bee nests will be relocated to; an assessment of the habitat and floristic resources found within the relocation sites; and a detailed description of the relocation process including method of removal, transport, and relocation."[145]

The PSA's deferral of the Crotch's Bumble Bee Mortality Reduction and Relocation Plan is compounded by its failure to provide evidence that nest relocation is an effective mitigation technique. The Xerces Society identifies nest relocation as a "last resort" and notes:

[143] PSA, p. 5.2-24.
[144] PSA, p. 5.2-249.
[145] PSA, p. 5.2-250.

a) "If the nest is underground, relocation will be nearly impossible as entrance tunnels can sometimes be several feet long."

b) "if you move the nest during the day, any bees that are out foraging will not be able to find the new nest location, and will likely die."[146]

Measure 8 in BIO-13 states: "[i]f an overwintering Crotch's bumble bee nest cannot be avoided, then Item 1 (Crotch's Bumble Bee Mortality Reduction and Relocation Plan) shall be implemented."[147] The proposed mitigation cannot be assessed because the PSA provides no information on the success of relocating overwintering bumble bees. According to the Xerces Society: "[i]f spring has not sprung, and the queen seems distressed—lots of audible wing vibrations—**or you attempt to relocate her to a new area**, there is a chance the queen will not re-enter the hibernation-like state."[148]

BIO-14 (Habitat Management Land Acquisition for Crotch's Bumble Bee and Western Burrowing Owl)

BIO-14 states:

> "The project owner shall purchase a minimum of 843 acres of Crotch's bumble bee and burrowing owl mitigation or conservation bank credits approved in advance by the CPM or shall provide for both the permanent protection and management of 843 acres of Habitat Management (HM) lands pursuant to Item 3 (Habitat Management Lands Acquisition and Protection) and the calculation and deposit of the management funds pursuant to the Item Endowment Fund."[149]

Currently, there are no conservation banks approved to sell credits for Crotch's bumble bee.[150] Therefore, it appears the Project owner would need to satisfy BIO-14 through the permanent protection and management of HM lands.

BIO-14 focuses on the legal and financial details of HM land acquisition. While these legal and financial details are important, BIO-14 omits site selection standards for the HM lands. Indeed, although the PSA states that HM lands would fully offset Project impacts on habitat for the Crotch's bumble bee and burrowing owl, BIO-14 does not establish a mechanism for ensuring the acquisition lands provide viable habitat for either species. As a result, and because BIO-14 does not incorporate performance standards for the HM lands, there are no assurances the HM lands would fully mitigate impacts to these two species.

BIO-16 (Desert Tortoise Avoidance Measures)

<u>Supplemental Mitigation for Desert Tortoise</u>

[146] The Xerces Society. 2025. Bumble Bees: Nesting and Overwintering [web page]. [accessed 29 May 2025]. https://xerces.org/bumble-bees/nesting-overwintering#Handling
[147] PSA, p. 5.2-253.
[148] The Xerces Society. 2025. Bumble Bees: Nesting and Overwintering [web page]. [accessed 29 May 2025]. https://xerces.org/bumble-bees/nesting-overwintering#Handling [emphasis added].
[149] PSA, p. 5.2-254.
[150] *See* https://wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks

Measure 1 in BIO-16 requires pre-construction surveys for desert tortoise. Measure 4 then states:

> "If desert tortoises are detected and an incidental take permit is necessary and if the issuance of take authorization will not jeopardize the species persistence in the region, standard desert tortoise incidental take permit conditions to minimize and fully mitigate impacts shall be required. These standard measures include: [6 measures listed]."[151]

The six supplemental mitigation measures identified in Measure 4 would be triggered by issuance of an incidental take permit. However, the PSA does not incorporate a mechanism *requiring* the Applicant to obtain an incidental take permit for the desert tortoise, even if the CPM and resource agencies believe an incidental take permit is necessary. As a result, Measure 4 provides no certainty that supplemental mitigation would be implemented if desert tortoises are detected during the pre-construction surveys.

Raven Management Plan

Measure 5 requires preparation and implementation of a Raven Monitoring, Management, and Reporting Plan ("Raven Plan") consistent with CDFW and U.S. Fish and Wildlife ("USFWS") raven management guidelines. Measure 5 defers formulation and approval of the Raven Plan until "prior to the start of ground disturbing activities," and it does not identify (e.g., cite) the CDFW and USFWS raven management guidelines that need to be implemented. This precludes the ability to assess the probability that the Raven Plan would provide adequate mitigation.

The PSA states: "[t]he purpose of the Raven Plan shall be to minimize project-related predator subsidies and prevent any increases in raven numbers or activity within desert tortoise habitat during construction and operation phases."[152] However, BIO-16 does not establish: (a) any performance standards for the Raven Plan; (b) raven monitoring requirements; or (c) a mechanism for ensuring the Raven Plan is effective in preventing an increase in raven numbers or activity due to the Project. Furthermore, the PSA does not identify the data and analysis that shall be used to determine whether the Project has resulted in an increase in raven numbers or activity. For these reasons, BIO-16 does not ensure desert tortoise predation and other significant impacts associated with ravens would be mitigated to less than significant levels.

BIO-17 (Nesting Bird Avoidance and Minimization Measures)

Measure 4 in BIO-17 contains a table that establishes default no-disturbance buffer zone distances, by disturbance level, for various groups of nesting birds. I have the following comments pertaining to the table.

1) The PSA does not identify the source of information used to derive the buffer distances provided in the table. In addition, the PSA does not provide the original author's standards for what constitutes a high, medium, or low level of disturbance (i.e., those standards may be inappropriate for a large construction project involving blasting). As a

[151] PSA, p. 5.2-263.
[152] PSA, p. 5.2-263.

result, the adequacy of the buffer distances in preventing significant impacts to nesting birds cannot be validated.

2) The PSA identifies 60 dBA as the noise threshold for most birds in California.[153] The default no-disturbance buffer zone distances proposed in the table would not prevent nesting birds from being exposed to construction noise levels that exceed the 60 dBA threshold. For example, if a pile driver hammer is operated at the edge of a 250-foot nest buffer, the noise level at the nest would be 114 dBA.[154] Noise at this level far exceeds the level known to be deleterious to birds and other wildlife.[155]

3) For each group of birds, the table provides an "initial" buffer distance, followed by "reduced" buffer distances for high, medium, or low disturbance levels. If the initial (default) buffer distance is 250 feet (e.g., for woodpeckers), it is unclear why a "reduced high disturbance level" buffer distance of only 75 feet would be sufficient to prevent significant impacts to the nesting birds. This issue is compounded by the PSA's failure to define the various disturbance levels (e.g., identify the types of construction activities that would qualify as "high" levels of disturbance).

4) The table identifies 0.5 miles as the initial buffer distance for golden eagle nests. This is inconsistent with USFWS guidance, which recommends a 2-mile buffer for blasting, and a 1-mile buffer for all other ground-based human activities.[156] In addition, the table states that golden eagle buffer reductions "will be coordinated with LADWP and CDFW." The reference to LADWP appears to be an error, and because the golden eagle is protected under the federal Bald and Golden Eagle Protection Act, any proposed buffer reductions must occur in consultation with the USFWS.

BIO-17 states: "[i]f active nests are detected during the survey, the DB or Biological Monitor shall monitor all nests with buffers at least once per week, to determine whether birds are being disturbed. If signs of disturbance or distress are observed, the DB or Biological Monitor shall immediately implement adaptive measures to reduce disturbance in coordination with the CPM in consultation with the CDFW." The proposed mitigation would not be effective because the temporal scale of the proposed monitoring is not commensurate with the scale at which a significant impact could occur. In this case, the PSA properly recognizes that if nesting birds are being disturbed by Project activities, adaptive management measures need to be implemented immediately. However, monitoring a nest once per week is not conducive to immediate implementation of adaptive management following a disturbance event, which could have occurred six days earlier. The Project would generate numerous sources of disturbance that would occur 24 hours per day. At a minimum, the default buffers proposed in BIO-17 would

[153] PSA, p. 5.2-177.
[154] PSA, p. 5.9-6 (128 dBA at 50 feet for a pile driver hammer). *Sound level at 250 feet was derived from* Omni Calculator. https://www.omnicalculator.com/physics/distance-attenuation#inverse-square-law
[155] Barber JR, Crooks KR, Fristrup KM. 2010. The costs of chronic noise exposure for terrestrial organisms. Trends in ecology & evolution 25(3):180-189. *See also* Shannon G, McKenna MF, Angeloni LM, Crooks KR, Fristrup KM, Brown E, Warner KA, Nelson MD, White C, Briggs J, McFarland S. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. Biological Reviews 91(4):982-1005. *See also* Dooling RJ, Popper AN. 2016. Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Birds. The California Department of Transportation, Sacramento, CA.
[156] U.S. Fish and Wildlife Service. 2021. Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada. [accessed 27 May 2025]. https://bit.ly/4mG11Md

expose nesting birds to two types of noise stimuli (e.g., chronic noise and impulse noise) that would far exceed ambient conditions. If the buffers proposed in BIO-17 are not expanded to reflect Project noise levels, the weekly monitoring proposed in BIO-17 will be utterly ineffective in preventing significant impacts to nesting birds.

BIO-18 (Collision Avoidance and Minimization Measures)

BIO-18 states: "[t]he project owner shall install bird flight diverters or other suitable aerial markers on the transmission line in all areas within 5-miles of Swainson's hawk nests."[157] A fundamental problem with this measure is that the Swainson's hawk surveys conducted by the Applicant's biologists were limited to the various Project components and 0.5-mile buffer area.[158] Therefore, the Applicant does not have the data needed to satisfy the requirements of BIO-18, nor does the PSA incorporate a mechanism for acquiring those data prior to installation of the Project's transmission line.

BIO-20 (Swainson's Hawk Avoidance and Minimization Measures)

Measure 4 in BIO-20 states: "[i]f surveys detect nesting Swainson's hawks, a 0.25 mile no-disturbance buffer zone shall be implemented around the nests until the end of the breeding season, or a qualified biologist determines that the nest is no longer active."[159] The PSA does not justify a 0.25-mile buffer as being sufficient to prevent significant impacts to Swainson's hawk nests. In addition, a 0.25-mile buffer would be inconsistent with CEC and CDFW guidelines, which recommend no new disturbances, habitat conversions, or project-related activities that may cause nest abandonment or forced fledging within 0.5 mile of an active nest.[160] It also would be inconsistent with the PSA's analysis, which states: "[t]o avoid impacts to nesting Swainson's the project owner would implement BIO-20 (Swainson's Hawk Avoidance and Minimization Measures) which would require the identification and monitoring of nests within 0.5 miles of development areas including the gen-tie line. No work would be authorized within these buffers unless compelling biological data suggests a smaller buffer could be implemented."[161]

Measure 5 in BIO-20 states: "[t]he project owner or Designated Biologist shall notify the CPM and CDFW within 48 hours if an active nest fails and if the failure was project related or predation."[162] This statement indicates the Project could cause a nest to fail, which would be considered "take" under CESA. However, the Applicant is not applying for an incidental take permit for the Swainson's hawk, and the COCs proposed in the PSA do not fully mitigate the Project's impacts on the species (e.g., habitat compensation is not required for impacts to Swainson's hawk foraging habitat). As a result, the PSA does not ensure compliance with CESA.

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[157] PSA, p. 5.2-271.
[158] PSA, Table 5.2-7.
[159] PSA, p. 5.2-278.
[160] California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Energy Commission and Department of Fish and Game. p. 7.
[161] PSA, p. 5.2-187.
[162] PSA, p. 5.2-279.

BIO-22 (American Badger and Desert Kit Fox Avoidance and Minimization Measures)

BIO-22 provides inconsistent information on the buffer size needed to prevent impacts to American badger or desert kit fox dens. Measure 1 states that the Project owner shall install a 500-foot buffer to avoid occupied dens during the pupping season (reduced to 200 feet outside of the pupping season).[163] However, Measure 2 states: "[i]f an active natal den is identified, a 250-foot avoidance buffer will be established."

The proposed buffer(s) might be sufficient for dens located near the periphery of the Project site. However, it does not ensure avoidance of impacts to badgers or kit foxes occupying dens in interior portions of the Project site. Badgers and kit doxes make nightly movements within their home ranges, which are relatively large. Therefore, if a den is located within the interior of the Project site, animals would pass through the buffer, then need to travel through the construction zone to access foraging habitat within their home range. Because the Project involves construction 24 hours per day, these animals would be subject to collisions with construction vehicles and other Project-related impacts. In addition, animals that remain at the burrow (e.g., pups) would be exposed to noise from blasting and other construction activities. The pile driver hammer used for surface work would produce a noise level of 128 dBA at 50 feet.[164] Therefore, if the pile driver hammer is used at the edge of a 500-foot buffer, the noise level at the den would be approximately 109 dBA. If the buffer is reduced to 200 feet, the noise level at the den would be 118.5 dBA. Terrestrial mammals begin exhibiting increased stress levels and decreased reproductive efficiency at noise levels between 52 dBA and 68 dBA.[165] As a result, the buffers proposed in BIO-22 would not prevent significant impacts to the American badger or desert kit fox.

BIO-23 (Mohave Ground Squirrel Avoidance and Minimization Measures)

BIO-23 states:

> "If Mohave Ground Squirrels are detected and an incidental take permit is necessary and if the issuance of take authorization will not jeopardize the species persistence in the region, standard Mohave Ground Squirrel incidental take permit conditions to minimize and fully mitigate impacts shall be required."

The PSA does not incorporate a mechanism *requiring* the Applicant to obtain an incidental take permit for the Mohave ground squirrel, even if the CPM and resource agencies believe an incidental take permit is necessary. In addition, BIO-23 fails to discuss what would occur if issuance of take authorization *would* jeopardize species persistence in the region.

BIO-24 (Lake and Streambed Equivalency Conditions)

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[163] PSA, p. 5.2-281.
[164] PSA, p. 5.9-6.
[165] Shannon G, McKenna MF, Angeloni LM, Crooks KR, Fristrup KM, Brown E, Warner KA, Nelson MD, White C, Briggs J, McFarland S. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. Biological Reviews 91(4):982-1005.

Measure 11 in BIO-24 states:

> "There are no permanent impacts to State waters and no off-site mitigation is proposed. However, if there are unanticipated temporary or permanent impacts to State waters the project owner shall provide verification to the CPM that the lands acquired under COC BIO-14 support a minimum of 3:1 ratio for any permanent impacts and 1:1 for temporary impacts."

There are several problems with this measure. First, the PSA fails to establish the rationale for the proposed mitigation ratios in accordance with the State Procedures for Discharges of Dredged or Fill Material to Waters of the State ("State Procedures").[166]

Second, mitigation in the form of preservation results in neither a gain of area or a gain in function. California has a "no net loss" policy for wetland acreage and functions (Executive Order W-59-93). As a result, the State Procedures identify specific criteria that must be met when preservation is used to provide compensatory mitigation.[167] The PSA does not ensure the compensatory mitigation required under BIO-24 would satisfy these criteria. For example, BIO-24 does not ensure: (a) "[t]he resources to be preserved contribute significantly to the ecological sustainability of the watershed;" and (b) "the resources are under threat of destruction or adverse modifications."

Third, the State Procedures require the permitting authority to identify the objectives, performance standards, and monitoring requirements for the compensatory mitigation.[168] BIO-24 does not identify these variables.

Fourth, BIO-24 does not identify the compensatory mitigation requirements that would be required if the lands acquired under COC BIO-14 do not contain State waters sufficient to satisfy the specified mitigation ratios.

Fifth, there is disagreement between CEC Staff and the Applicant regarding the delineation of jurisdictional waters and impacts to those waters.[169] Whereas BIO-24 requires an updated Jurisdictional Report prior to site mobilization,[170] it fails to incorporate a mechanism for verifying the Project's impacts (or lack thereof) to State waters.

This concludes my comments on the PSA.

Sincerely,

Scott Cashen, M.S.

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[166] State Water Resources Control Board. 2019 (revised 2021). State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. p 33. [accessed 5 Jun 2025]. https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf
[167] *Ibid*, p. 34.
[168] *Ibid*, p. 35.
[169] PSA, pp. 5.2-10, -11, -201, and -202.
[170] PSA, p. 5.2-292.

Senior Biologist

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 Calexico 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.

ATTACHMENT D

Supporting reference documents for the Comments of the California Unions for Reliable Energy on the Preliminary Staff Assessment and its technical expert reports can be accessed at the following Dropbox link:

https://www.dropbox.com/scl/fo/h1vqp1amqtcf5ocwdmzx1/AE7oG8gIrm_0trmSEp8O2tc?rlkey=j1ybd6ntk3d9ca5uvjv37ilzp&st=7lwqdqww&dl=0

We request that these documents be included in the official record of proceedings and can provide hard copies upon request.