2. COMMON RESPONSES TO RECURRING COMMENTS

A number of the comments received on the Draft EIR/EIS addressed the same or similar issues and environmental concerns. Rather than repeat responses to recurring comments in each letter, the common responses outlined in Sections 2.1 through 2.13 were prepared. The common response section numbers and topics are as follows and include common response codes (e.g., INT) for each topic:

2.1 EIR/EIS Adequacy and Purpose (INT)

2.2 Project Description (PD)

2.3 Alternatives Analysis (ALT)

2.4 Biological Resources (BIO)

2.5 Visual Resources (VIS)

2.6 Cultural Resources (CUL)

2.7 Noise (NOI)

2.8 Public Health and Safety (PHS)

2.9 Water Resources (WR)

2.10 Fire and Fuels Management (FIRE)

2.11 Social and Economic Conditions (SOC)

2.12 Climate Change (CC)

2.13 Cumulative Analysis (CUM).

Tables 2-1 through 2-13 summarize common responses and issues, include an identification number, and provide a list of commenters on that topic.

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2.1 EIR/EIS ADEQUACY AND PURPOSE

Summary of Issues Raised

Table 2-1 provides a list of recurring comments related to EIR/EIS adequacy and purpose and addressed by common responses.

Table 2-1 Common EIR/EIS Adequacy and Puspose Response Topics

Common Response/Issue	Origin of Comment
INT1: Review period extension	A2 – Congressman Filner (Comment A2-1) B3 – California Department of Fish and Game (Comment B3-2) D28 – Boulevard Planning Group (Comment D28-4) D29 – CAL FIRE (Comment D29-9) E4 – Sempra (Comments E4-17, E4-18) F40 – Jim Collins (Comment F40-2) F41 – Earl Goodnight (Comment F41-6) F51 – Harry and Tracy Backer (Comment F51-8) F108 – Steven and Laurie Squillaci (Comment F108-5)
INT2: General adequacy of Draft EIR/EIS	A5 – U.S. Environmental Protection Agency (Comment A5-3) B3 – California Department of Fish and Game (Comments B3-22, B3-23, B3-24, B3-27, B3-28, B3-29, B3-30) B5 – California Natural Resources Agency (Comment B5-8) B7 – California State Lands Commission (Comments B7-2, B7-5, B7-6, B7-7, B7-8, B7-17, B7-30) B8 – County of San Diego (Comments B8-2,B8-3, B8-6, B8-7, B8-10, B8-11) C2 – Ewiiaapaayp Band of Kumeyaay Indians (Comment C2-2) C5 – Ewiiaapaayp Band of Kumeyaay Indians (Comments C5-1, C5-4, C5-5, C5-6, C5-7, C5-8) D26 – Adams Broadwell Joseph and Cardozo (Comments D26-3, D26-5, D26-6, D26-8, D26-10, D26-17, D26-18, D26-22, D26-23, D26-24, D26-25) D28 – Boulevard Planning Group (Comment D28-109) D33 – Law Offices of Stephan Volker (Comments D33-3, D33-4, D33-10) E1 – Iberdrola Renewables, Attachment C (Comment E1-19) E2 – Iberdrola Renewables (Comments E2-15, E2-23) E3 – San Diego Gas & Electric Company (Comments E3-7, E3-17, E3-19, E3-20, E3-21, E3-22, E3-23) E4 – Sempra (Comment E4-5, E4-16) F35 – Christopher Dunn (Comment F35-1) F46 – Howard Cook (Comment F46-31) F86 – Danielle Cook (Comment F86-15) F88 – Jon Isaacs (Comment F88-6) F89 – Derik Martin (Comment F89-1) F97 – Mary Lu Brandwein (Comment F97-6) F103 – Mark Hass (Comments F103-1, F103-10)

Table 2-1 (Continued)

Common Response/Issue	Origin of Comment
	F104 – Caroline Isaacs (Comments F104-4, F104-6) F105 – Carmen Lucas (Comments F105-1, 105-3)
INT3: Mitigation measure deferral/implementation	A3 – Congressman Hunter (Comment A3-10) A5 – U.S. Environmental Protection Agency (Comments A5-11, A5-12) B1 – Law Office of Cynthia Eldred (Comment B1-2) B3 – California Department of Fish and Game (Comments B3-16, B3-17, B3-19, B3- 20, B3-21, B3-31) B7 – California State Lands Commission (Comments B7-2, B7-6, B7-18, B7-21, B7-22, B7-23, B7-26) B8 – County of San Diego (Comments B8-3, B8-4, B8-5, B8-6, B8-10, B8-11, B8-12) D21 – Courtney Ann Coyle (Comment D21-8) D26 – Adam Broadwell Joseph Cardozo (Comments D26-10, D26-25) D28 – Boulevard Planning Group (Comments D28-77, D28-81, D28-82) D33 – Law Offices of Stephan Volker (Comments D33-17, D33-25) D34 – Natural Resources Defense Council (Comments D34-25) F69 – Mary Lu Brandwein (Comment F69-20) F86 – Danielle Cook (Comment F86-23) H4 – County of San Diego (Comment H4-6)
INT4: Adequacy of applicant prepared studies	B8 – County of San Diego, Attachment A (Comment B8-15) D34 – Natural Resources Defense Council (Comment D34-18) F88 – Jon Isaacs (Comment F88-6)

INT1: Several commenters requested that the public review period be extended past the regulatory 45-day review period.

INT2: Commenters commented on the general adequacy of the Draft EIR/EIS. In addition several comments questioned how the lead/responsible/cooperating agencies under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) would use the EIR/EIS in permitting the Tule Wind or ESJ Gen-Tie projects. Further, many commenters indicated the potential need for recirculation of the EIR/EIS.

INT3: Several commenters believe that the EIR/EIS improperly defers mitigation.

INT4: Some commenters questioned the adequacy of applicant prepared technical studies.

Common Responses

INT1: **Review period extension.** According to the CEQA Guidelines, Section 15205(d), and NEPA (40 CFR 1506.10), the customary review period of a Draft EIR/EIS is 45 days. In accordance with CEQA and NEPA, the Notice of Availability (NOA) of the Draft EIR/EIS was distributed to more than 1,500 federal and state agencies; county and local jurisdictions; regional and local agencies, including local libraries; Native Americans; attorneys; private citizens; and the State Clearinghouse. The NOA, distributed on December 22, 2010, notified agencies, interested parties, and the public of the public review period of the Draft EIR/EIS, which began on December 24, 2010, and ended 54 days later on February 16, 2011. Recognizing that the public review period began during the holidays, the public comment period was extended past the typical 45-day public review period for a total of 54 days.

In addition to mailing the notice, the NOA was published in a regional newspaper, the *San Diego Union Tribune,* on December 24, 2010, as well as in a local newspaper, the *Back Country Messenger*, in the January 2011 monthly edition. On behalf of the Bureau of Land Management (BLM), the Environmental Protection Agency (EPA) also published an NOA in the Federal Register on December 23, 2010. BLM issued a news release on December 23, 2010, announcing availability of the Draft EIR/EIS on their project website at http://www.blm.gov/ca/st/en/fo/elcentro/nepa/tule.html. The NOA was also published on the California Public Utilities Commission (CPUC) website for the project at:
http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/ECOSUB.htm.

In early February, the CPUC and BLM, at the request of EPA, announced another extension of the public comment period from February 16, 2011, to March 4, 2011—an additional 16 days beyond the original 54 days, for a total of 70 days. The extension notice was mailed on February 10, 2011, to the 1,500 + distribution list and was also published on the CPUC and BLM project websites. In addition, a one-page notice was prepared and sent to the Jacumba and Boulevard postmasters for posting on community boards within local post offices; the Highland Senior Center in Jacumba; as well as the three area libraries, including the Jacumba Public Library, Campo-Morena Village Branch Library, and Potrero Branch Library. The *Back Country Messenger* posted the extension notice on their community calendar as well (http://plus.calendars.net/backcountry). Therefore, since the comment period has been extended 25 days past the required 45 days, for a total review period of 70 days, adequate review time and notice has been provided.

INT2: **General adequacy of Draft EIR/EIS**. The EIR/EIS has been prepared pursuant to CEQA (California Public Resources Code, Section 21000 et seq.) and the CEQA Guidelines (14 CCR 15000 et seq.), as well as the requirements of NEPA (42 U.S.C. 4321 et seq.), the Council on Environmental Quality (CEQ) regulation for implementing NEPA (40 CFR 1508 et seq.), and the BLM NEPA Handbook (H-1790-1).

The EIR/EIS appropriately identifies the potential impacts applicable to the Proposed Project, objectively evaluates those potential impacts, provides appropriate mitigation and alternatives designed to lessen those potential impacts, and conservatively evaluates those impacts in light of the mitigation in order to make a final impact determination. All conclusions within the EIR/EIS are based upon substantive evidence. The EIR/EIS is a legally adequate and defensible EIR/EIS pursuant to CEQA and NEPA and has provided sufficient detail and evidence to allow for meaningful public and agency review. Refer to the mitigation measure deferral/implementation response (common response INT3) and common response ALT1 (analysis of project alternatives).

As discussed in Section A.5 of the Draft EIR/EIS, the CPUC will use the EIR/EIS, in conjunction with other information developed in the CPUC's formal record, to act only on San Diego Gas &Electric's (SDG&E's) application for a Permit to Construct (PTC) to construct and operate the proposed ECO Substation. The BLM will issue two records of decision (ROD)—one for the ECO Substation Project and one for the Tule Wind Project.

The CPUC has no discretionary action/authority over the Tule Wind or ESJ Gen-Tie projects and BLM has no discretionary action/authority over the ESJ Gen-Tie Project. These projects are identified in the Draft EIR/EIS in Section A.1 as "connected actions" under NEPA or "whole of the action" under CEQA in order to allow the CPUC's decision makers to consider broad impacts, mitigation, and consequences of the ECO Substation Project specifically, and the wider Proposed PROJECT as a whole during consideration of the ECO Substation. In this manner, the CPUC and BLM are able to evaluate the entirety of the potential impacts in order to make an informed decision regarding overall effects of the Proposed PROJECT.

As described in Section A.5.3 of the Draft EIR/EIS, other agencies, including the County of San Diego (County), California State Lands Commission, Bureau of Indian Affairs (BIA), and Ewiiaapaayp Band of Kumeyaay Indians, may also use the EIR/EIS for their permitting/approval processes. The County has discretionary authority over the Tule Wind and ESJ Gen-Tie projects, while BIA, Ewiiaapaayp Band of Kumeyaay

Indians, the County, and the California State Lands Commission (CSLC) also have discretionary authority over the Tule Wind Project. Therefore, these agencies would act, as appropriate, in consideration of portions of the Tule Wind and ESJ Gen-Tie projects within their jurisdiction. As lead/responsible/cooperating agencies, these agencies could choose to either rely on the CPUC/BLM environmental document to meet their CEQA/NEPA requirements or amend, supplement, and/or prepare additional documentation to meet their environmental compliance needs. Regardless, these agencies would first evaluate the level of detail and potential impacts related to specific aspects of their respective projects and make an informed determination as to the need for further studies and/or analysis.

Disagreement among experts, consultants, or attorneys regarding the material, data, or significance determinations does not mean the EIR/EIS is legally inadequate. It is up to the lead agencies to evaluate the presented material and data and make their own reasoned determinations regarding the material's accuracy. Case law clearly establishes the right of the lead agency to accept one expert opinion over another, so long as the decisions are supported by substantive evidence. Where experts or other agencies challenging the results or methodology of the document have raised comments, the EIR/EIS has provided a reasoned and good faith analysis in response, as well as a discussion related to why the analysis may, or may not, contradict any conflicting opinions. Such reasoning is based upon substantial evidence in order to support the EIR/EIS's approach.

As a result of specific environmental issues raised, revisions have been made to the Final EIR/EIS text to further clarify text. These revisions to the EIR/EIS are presented in ~~strikeout~~--underline format in the Final EIR/EIS. No new significant environmental impacts are identified as a result of comments and/or revisions made to the EIR/EIS. Therefore, the CPUC, as lead CEQA agency in consideration of the ECO Substation Project, and BLM, as lead NEPA agency in consideration of both the ECO Substation and Tule Wind projects, have concluded that the environmental issues addressed in the EIR/EIS have been fully analyzed in accordance with CEQA and NEPA. The EIR/EIS provides all pertinent information necessary to allow for meaningful public and agency review.

Section 15088.5 of the CEQA Guidelines sets forth the required tests for recirculation. The most critical issue to resolve regarding recirculation is if new or changed information or circumstances are "significant" or not. New significant information or circumstances is neither required nor is it proposed for inclusion in the EIR/EIS and recirculation of the document, pursuant to CEQA Guidelines

Section 15088.5, is not warranted. According to conditions outlined in Section 5.3 of the BLM's NEPA Handbook (H-1790-1), supplementing the EIS is not required. According to Section 5.3 of the BLM NEPA Handbook, supplementing an EIS would only be required if the following circumstances apply:

1. When substantial changes to the proposed action are made and are relevant to environmental concerns (40 CFR 1502.9(c)(1)(i));
2. When a new alternative is added that is outside the spectrum of alternatives already analyzed (see Question 29b, CEQ Forty Most Asked Questions Concerning CEQ's NEPA Regulation, March 23, 1981); and
3. When there are new significant circumstances or information relevant to environmental concerns and have bearing on the proposed action or its effects (40 CFR 1502.9(c)(1)(ii)).

None of the changes or additions as a result of the provided comments meet the standards for recirculation as provided under the CEQA Guidelines or applicable case law or NEPA (40 CFR 1502.9(c)(1)(ii)). The information does not show any new, substantial environmental impacts; a substantial increase in the severity of any impacts; and does not provide any new mitigation or alternatives that are feasible in order to lessen a potentially significant impact in the EIR/EIS. The environmental document provides a reasoned, balanced, and thorough evaluation of the physical impacts pertaining to the Proposed PROJECT in order to allow meaningful public review and provide the opportunity for the respective agencies to make informed decisions.

INT3: **Mitigation measure deferral/implementation**. Pursuant to CEQA Guidelines (14 CCR 15000 et seq.) and NEPA regulations for preparation of an EIS (40 CFR 1502.16), the Draft EIR/EIS identifies potential significant effects due to construction and operation of the Proposed PROJECT and provides applicant proposed measures (APMs) and mitigation measures and alternatives that would substantially reduce these effects. The Proposed PROJECT implements all feasible mitigation measures and has described the actions that will be taken to either reduce or avoid potentially significant impacts wherever feasible. Such mitigation is based upon focused studies and environmental review that is feasible and practical based upon project specifics known at this time. The CPUC and BLM have committed themselves to incorporate all reasonable mitigation; mitigation would only be deferred to a later date if it were impractical to create specific mitigation this early in the planning process. Pursuant to case law, an agency may defer defining the specifics of mitigation measures if it commits itself to mitigation and lists the alternatives to be considered, analyzed, and

potentially incorporated in the mitigation plan, and an agency may even rely upon future studies, if those studies help further define specific mitigation measures. For example, Section D.8 of the EIR/EIS provides a complete and accurate evaluation of the potential noise impacts and includes all feasible mitigation in order to lessen and reduce those impacts. Part of the required mitigation includes the requirement to create a future specific noise mitigation plan to reduce operational noise impacts. The measure also includes the types of details that may be included in the plan to reduce such impacts. The incorporation of mitigation requiring a site-specific noise plan is required in order to tailor specific mitigation measures to be as effective as possible based upon project specific attributes that will be known in greater detail at that time. This binding mitigation allows the lead agency enhanced opportunities to reduce any associated noise impacts to the greatest extent possible.

In addition, as discussed in Section B.3 of the EIR/EIS, the applicants (SDG&E, Tule Wind, LLC, and ESJ) identified best management practices (BMPs) that have been incorporated in this EIR/EIS as APMs that would be implemented to avoid or reduce potential impacts from the Proposed PROJECT. During the preparation of the EIR/EIS, these measures were assumed part of the Proposed PROJECT and are not considered as CPUC- or BLM-recommended mitigation measures. However, the applicants' APMs will be monitored by the lead agencies as they will be compiled with the mitigation measures into the final Mitigation Monitoring Compliance and Reporting Program (MMCRP), which will be completed upon adoption of the Final EIR/EIS.

An MMCRP table for the Proposed PROJECT is provided at the end of each issue area in Section D of the EIR/EIS (Sections D.2 through D.18) that lists each mitigation measure and outlines procedures for successful implementation. Section H of the EIR/EIS provides the recommended framework for effective implementation of the MMCRP by the CEQA lead agency for the ECO Substation Project, and the NEPA lead agency for both the ECO Substation and Tule Wind projects. Responsible/cooperating agencies, including the County, CSLC, BIA, and the Ewiiaapaayp Band of Kumeyaay Indians, may use the MMCRP for their permitting processes. See common response INT2 regarding EIR/EIS adequacy and use. As required by CEQA Section 21081.6 of the California Public Resources Code, the CPUC has prepared and will adopt an MMCRP for adopted or required changes made as a condition of approval of SDG&E's proposed ECO Substation Project.

The BLM is the federal lead agency for preparation of this EIR/EIS, charged with evaluation of SDG&E's proposed ECO Substation Project and Tule Wind, LLC's

proposed Tule Wind Project. For portions of the project on federal lands owned or managed by the BIA and the Ewiiaapaayp Band of Kumeyaay Indians, BLM will coordinate with the BIA and the Ewiiaapaayp Band of Kumeyaay Indians in implementing mitigation requirements.

Title V of the Federal Land Policy and Management Act (FLPMA) addresses the issuance of right-of-way (ROW) authorizations on public land (43 U.S.C. 1701 et seq.). The general terms and conditions for all public land ROWs are described in FLPMA Section 505, and include measures to minimize damage and otherwise protect the environment; require compliance with air and water quality standards; and compliance with more stringent state standards for public health and safety, environmental protection, siting, construction, operation, and maintenance of ROWs. For these projects, terms and conditions will be incorporated into the ROW grants that are necessary to protect public safety, including security fencing and on-site personnel. The environmental effects analysis in the EIR/EIS identifies impacts and mitigation measures to reduce/eliminate impacts. The mitigation measures identified by the BLM will be incorporated as terms and conditions of the ROW grants and will provide those actions necessary to prevent unnecessary or undue degradation of the public lands as required by FLPMA Section 302. The additional mitigation measures identified in the MMRCP tables presented at the end of each issue area section of the EIR/EIS (Sections D.2 through D.18) will primarily be enforced by the other agencies, and will provide additional protection to public land resources.

The County will be responsible for ensuring mitigation compliance for its discretionary action under CEQA in consideration of issuing two separate major use permits (Major Impact Service Utility): one for the Tule Wind Project and one for the ESJ Gen-Tie Project, because portions of those projects are within lands managed by the County. Because portions of the Tule Wind Project will occur on lands under the jurisdiction of the CSLC, they will be responsible for ensuring mitigation compliance on their lands for portions of the Tule Wind Project.

Once sufficient project-level information has been developed for the proposed Campo, Manzanita, and Jordan wind energy projects, an MMCRP would be prepared following project-specific environmental review and evaluation under all applicable environmental regulations.

The MMCRP is designed to ensure compliance during implementation of the approved project. The achievement of this goal involves the following five key actions:

1. Adoption of appropriate mitigation measures as identified in the Final EIR/EIS and the Findings as conditions of approval of the selected project.
2. Implementation of the adopted mitigation measures, as necessary to achieve the avoidance of reduction of significant impacts as recognized in the Final EIR/EIS and the Findings.
3. Implementation of a monitoring process that confirms the application of the adopted mitigation measures.
4. Implementation of a monitoring process that measures the applied effectiveness of the adopted mitigation measures.
5. Establishment of a review and decision process that modifies the adopted mitigation measures or institutes new mitigation measures, as necessary, to achieve the avoidance or reduction of significant impacts recognized in the Final EIR/EIS and the Findings.

INT4: **Adequacy of applicant prepared studies.** Applicant prepared technical reports were utilized by Dudek to identify resources potentially affected by the Proposed PROJECT. A memorandum of how the EIR/EIS team utilized the Tule Wind Applicant's Environmental Document (AED) is available on the CPUC project website at: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/TuleAED/00_MemoTuleAED.pdf. In addition, applicant prepared technical reports are available on the CPUC project website under "Other Documents Available" and include memorandums describing how technical reports were used (http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/ECOSUB.htm). The impact conclusions contained in the technical reports were not used by Dudek in the impact analysis sections of the EIR/EIS. Rather, Dudek, the CPUC, and the BLM independently evaluated information presented in the applicant prepared studies and used this information, along with additional information as described in each methodology section, as the basis for the EIR/EIS impact analysis.

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2.2 PROJECT DESCRIPTION

Summary of Issues Raised

Table 2-2 provides a list of recurring comments related to the project description and addressed by common responses.

Table 2-2 Common Project Description Response Topics

Common Response/Issue		Origin of Comment
PD1:	Project description adequacy	A3 – Congressman Hunter (Comment A3-2) B7 – California State Lands Commission (Comments B7-2, B7-3, B7-4, B7-9, B7-10) D26 – Adams Broadwell Joseph and Cardozo (Comments D26-8, D26-10, D26-18) E3 – San Diego Gas & Electric Company (Comment E3-7) F98 – Cindy Buxton (Comment F98-13) F103 – Mark Hass (Comment F103-1)
PD2:	Import renewable energy only on ESJ Gen-Tie Line/permitting requirements for projects in Mexico	D33 – Law Office of Stephan C. Volker (Comment D33-21) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-22)
PD3:	Proposed future expansion of the ECO Substation would result in additional renewable energy development not addressed in the EIR/EIS	F90 – Jeffrey and Laura McKernan (Comment F90-12)

PD1: Commenters expressed concern regarding adequacy of the project description.

PD2: Commenters noted concern that the ESJ Gen-Tie Project would not only import energy from renewable resources from Baja California, Mexico. In addition, commenters noted that projects in Mexico that connect to the California energy grid should comply with CEQA.

PD3: Commenters expressed concern that proposed future expansion of the ECO Substation would result in additional renewable energy development not addressed in the EIR/EIS.

COMMON RESPONSES

PD1: **Project description adequacy**. The CPUC and BLM have prepared a Joint EIR/EIS under CEQA and NEPA for consideration of SDG&E's application to build and operate the ECO Substation Project. In addition, the EIR/EIS addresses Tule Wind, LLC's right-of-way grant application to build and operate the Tule Wind Project as well as Energia Sierra Juarez U.S. Transmission, LLC's application to build and operate the ESJ Gen-Tie Project. These projects are considered "connected actions" under NEPA and "whole of

the action" under CEQA. Therefore, the ECO Substation Project, Tule Wind Project, and ESJ Gen-Tie Project are collectively referred to as the Proposed PROJECT in the EIR/EIS. In addition, the EIR/EIS also considers at a qualitative/program level the proposed Campo, Manzanita, and Jordan wind energy projects, which would connect into the proposed Boulevard Substation Rebuild component of the ECO Substation Project. These wind projects are considered at a qualitative/program level as project-level information has not yet been developed.

The project description presented in Section B of the EIR/EIS provides sufficient information needed for the evaluation and review of environmental effects of constructing, operating, and decommissioning the Proposed PROJECT pursuant to Section 15124 of the CEQA Guidelines and Section 6.5.1, Description of the Proposed Action of the BLM NEPA Handbook (p. 43). Section B of the Draft EIR/EIS provides a detailed project description including location and boundaries, construction schedule, construction activities and methods, construction personnel and equipment, water usage, and operations and maintenance activities for: (1) the ECO Substation Project, including a new 500/230/138-kilovolt (kV) ECO Substation, a new 13.3-mile 138 kV transmission line (connecting the ECO Substation with the Boulevard Substation Rebuild), and a rebuild of the existing Boulevard Substation to operate at 138/69/12 kV; (2) the Tule Wind Project, including up to 128 wind turbines and associated facilities, including an aboveground and underground cable collection system, collector substation, and an operations and maintenance facility, and an approximate 9.2-mile 138 kV transmission line to interconnect with the proposed Boulevard Substation Rebuild; and (3) the ESJ Gen-Tie Project, including an approximately 1-mile 500 kV (or 230 kV) gen-tie from the U.S.–Mexico border approximately 4 miles southeast of the community of Jacumba to interconnect with the proposed ECO Substation. Approval of the Campo, Manzanita, and Jordan wind energy projects will require further evaluation under all applicable environmental regulations once sufficient project-level information is developed. By including these nascent wind projects as components of the Proposed PROJECT, it allows the CPUC as lead agency under CEQA for the ECO Substation and BLM as lead agency under NEPA for both the ECO Substation and Tule Wind projects to further consider broad impacts, mitigation, and consequences of the ECO Substation Project specifically, and the wider Proposed PROJECT as a whole.

The project description is accurate, includes all project components, and is consistent throughout the entire analysis. These changes and additions to the EIR/EIS do not raise important new issues related to significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines and under

NEPA, do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

PD2: **Import renewable energy only on ESJ Gen-Tie Line/permitting requirements for projects in Mexico**. While CEC rules stipulate that out of state generation must comply with state environmental regulations in order to qualify as an eligible renewable resource, this rule only applies to generators that interconnect outside of CAISO control area. ECO Substation and consequently ESJ Gen-Tie are within the CASIO authority, and therefore not subject to this rule. The Draft EIR/EIS states on page ES-11 and in Sections B.2.3 and B.5.1 that the "proposed ESJ Gen-Tie would have the capacity to import 1,250 MW of renewable energy generated in northern Baja California, Mexico." Section A, Introduction/Overview, of the EIR/EIS further states that the primary purpose of the ESJ Gen-Tie would be to transmit 1,200 megawatts (MW) of renewable energy from a wind project proposed in northern Baja California, Mexico, to the proposed ECO Substation. For purposes of the analysis and for disclosure purposes, the EIR/EIS evaluates potential impacts to biological resources, visual resources, and fire to the United States from the Phase I ESJ Gen-Tie Wind Energy Project in Mexico. Any evaluation of other potential energy sources that may or may not utilize the ESJ Gen-Tie would be speculative. Additionally, energy projects built in Mexico do not need to comply with CEQA or NEPA. Federal, state, and local agencies do not have jurisdictional authority in Mexico and therefore would not be able to require and/or enforce conditions of approval or feasible mitigation for development projects in Mexico.

PD3: **Proposed future expansion of the ECO Substation would result in additional renewable energy development not addressed in the EIR/EIS**. The EIR/EIS acknowledges in Section A.3, Project Objectives, and Section B, Project Description, that the proposed ECO Substation would be designed in accordance with SDG&E's long-term planning practices to accommodate the import of the currently known renewable power projects along with having capability of expanding within the substation fence to accommodate additional renewable energy generation in the future from wind and other sources in southeastern San Diego County. It is not possible to predict or provide additional description of such future renewable wind and other source energy facilities beyond those already described in Section F, Cumulative Scenario and Impacts, which describes the planned wind generation projects planned for interconnection into the proposed ECO Substation as listed in the CAISO Generation Interconnection Queue.

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2.3 ALTERNATIVES ANALYSIS

Summary of Issues Raised

Table 2-3 provides a list of recurring comments related to project alternatives and addressed by common responses.

Table 2-3 Common Alternatives Response Topics

Common Response/Issue	Origin of Comment
ALT1: Analysis of project alternatives	B7 – California State Lands Commission (Comment B7-46) C5 – Ewiiaapaayp Band of Kumeyaay Indians (Comment C5-7) D26 – Adams Broadwell Joseph and Cardozo (Comments D26-10, D26-24) D27 – Backcountry Against Dumps (Comment D27-3) D33 – Law Offices of Stephan Volker (Comments D33-3, D33-7) D34 – Natural Resources Defense Council (Comments D34-5, D34-7) F15 – Jeanne Davies (Comment F15-1) F86 – Danielle Cook (Comment F86-23) F98 – Cindy Buxton (Comment F98-6)
ALT2: Distributed generation alternative	A2 – Congressman Filner (Comment A2-4) B7 – California State Lands Commission (Comment B7-46) D5 – San Diego Renewable Energy Society (Comments D5-10, D5-11) D6 – San Diego Renewable Energy Society (Comments D6-12, D6-14) D10 – San Diego Renewable Energy Society (Comments D10-2, D10-3, D10-4) D33 – Law Offices of Stephan Volker (Comments D33-2, D33-3, D33-9, D33-27, D33-29) D34 – Natural Resources Defense Council (Comment D34-6) F3 – Jeanne Bennett (Comment F3-1) F15 – Jeanne Davies (Comment F15-1) F49 – Mark Meech (Comment F49-2) F67 – Mark Ostrander (Comment F67-39) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comments F99-21, F99-24)

ALT1: Several commenters questioned the range of alternatives evaluated in the EIR/EIS or suggested evaluating other alternatives. For instance, why is the project being proposed where it is and/or were other energy alternatives considered (e.g., distributed generation)?

ALT2: Multiple commenters suggested distributed generation as an alternative to the Proposed PROJECT.

Common Responses

ALT1: **Analysis of project alternatives**. In accordance with Section 15126.6 of the CEQA Guidelines, a range of reasonable alternatives to the project that could obtain the basic objectives of the project and that are capable of eliminating any significant environmental impacts was addressed in the EIR/EIS. CEQA does not require an EIR to consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives (CEQA Guidelines, Section 15126.6(a)). Similarly, NEPA guidelines require the consideration of a reasonable range of alternatives, defined as alternatives that are practical or feasible from an economic standpoint (40 CFR 1502.14).

The analysis of alternatives for an EIR/EIS is based on whether the alternative would eliminate or reduce significant environmental effects and should compare the alternative to the proposed project in terms of relative environmental impacts and feasibility. While there are no fixed rules regarding the number or type of activity that should be analyzed within the alternative section, in total, the alternatives screening process for this EIR/EIS culminated in the identification and screening of 40 potential alternatives (see Section C of the EIR/EIS). These potential alternatives were evaluated for their ability to reduce significant environmental impacts; their feasibility and reasonableness; and their ability to attain most of the project objectives for the Proposed PROJECT. From this list of potentially feasible alternatives, the CPUC and BLM identified a reasonable range of project alternatives designed to foster public participation and informed decision making. These alternatives identified included alternative locations and design alternatives for the ECO, Tule Wind, and ESJ Gen-Tie Projects, as well as other energy alternatives (including energy efficiency and distributed generation), and four No Project/No Action alternatives. Further analysis of alternatives to the project would not provide more meaningful data on ways to lessen or avoid those impacts deemed significant given the comprehensive nature of the analysis. Therefore, the CPUC and BLM have determined that the evaluation of alternatives conducted in the EIR/EIS provides a range of reasonable alternatives as defined by CEQA Guidelines Section 15126.6 and NEPA (40 CFR 1502.14); hence, no further analysis of alternatives to the project is warranted. Additionally, none of the submitted comments provides any reasonable alternatives not envisioned in the EIR/EIS that would simultaneously meet the objectives of the Proposed PROJECT while substantially reducing any of the potentially significant impacts.

As stated in the EIR/EIS in Section C.2.1, Consistency with Project Objectives, Section 15126(a) of the CEQA Guidelines (14 CCR 15000 et seq.) requires that project objectives be set forth in an EIR in order to help define alternatives to the Proposed PROJECT that meet most of the basic project objectives. Moreover, a project may not limit the objectives of a project in such a way as to effectively confine the range of feasible alternatives that are available. Having taken into consideration the project objectives set forth by SDG&E for the ECO Substation Project; Tule Wind, LLC, for the Tule Wind Project; and Energia Sierra Juarez U.S. Transmission, LLC, for the ESJ Gen-Tie Project (Section A of the EIR/EIS), the CPUC has identified the following basic project objectives, which were used to screen alternatives:

C-1 Accommodate delivery of renewable energy to meet state and federal renewable energy goals from wind and solar sources in San Diego County

C-2 Meet California's renewable portfolio standard (RPS) under Senate Bill (SB) X1 2, which established a renewable energy target of 33% of total electricity sold to retail customers by 2020

C-3 Improve the reliability of the delivery of power to the communities of Boulevard, Jacumba, and surrounding communities.

As shown in Figure A-1 and described in Section C.5.2.1 of the EIR/EIS, areas in San Diego County with consistent high wind speeds and near existing high voltage transmission lines are primarily limited to the study area for the Proposed PROJECT. Alternative sites for the ECO Substation Project outside the study area would not meet project objectives because they would not accommodate planned renewable energy generation in San Diego County and Mexico where good wind resources near the existing Southwest Powerlink have been identified or serve to improve the reliability of the delivery of power to Boulevard, Jacumba, and surrounding communities. Please see common response ALT2, regarding distributed generation.

ALT2: Distributed generation alternative. As part of the alternative evaluation process, the EIR/EIS in Section C.5.4.1, Distributed Generation—Rooftop Solar Panels and Other Alternative Fuel Supplies Description, discusses distributed generation alternatives, including rooftop solar. Any analysis concerning the feasibility of distributed generation as an alternative is extremely sensitive to assumptions around the technological mix and location. However, both solar and biogas based distributed generation technologies rely upon subsidy programs to make them economically competitive within California. As a consequence, the least speculative and most

probable mix of technologies will closely resemble the mix currently supported by CPUC policy over the next 5 years (see below for details). More specifically, a review of program implementation within SDG&E territory will give an indicator of the most likely outcome for different technologies, and by extension, whether renewable distributed generation can provide an alternative that will satisfy the objectives of the project.

The project objective is to provide renewable energy to satisfy both state and federal requirements, specifically to satisfy the state mandated 33% of electricity from renewable resources by 2020. Depending upon the measure, the project proposes to access the equivalent of 635.5 MW of wind capacity with the potential for up to the equivalent of 1759 MW of wind capacity. Any renewable distributed generation alternative would be required to provide the similar quantities.

CEQA requires the analysis of potentially viable alternatives (CEQA Guidelines, Section 15126.6). Under current regulatory conditions when assessing the viability of alternatives, anything that requires regulatory change would be open to a full CPUC investigation and rule making process, the outcome of which would be unknown and can only be viewed as speculative. The foreseeable regulatory landscape until 2016 provides for up to 180.7 MW of distributed generation from a mix of distributed generation, within SDG&E territory. In addition, California State Initiative (CSI) may contribute the equivalent of 36MW of wind capacity by 2016, and Self-Generation Incentive Program (SGIP) offers the equivalent of 127.3 MW over a similar timescale. Thus, the combined effect of distributed generation programs gives a maximum foreseeable contribution of up to 344 MWs. Consequently, under current regulatory conditions a distributed generation technology alternative falls short of the 635.5 MW of analyzed wind capacity and the potential for an additional 1140 MW of wind capacity offered by the project. Therefore, while a distributed generation-based, mixed technology approach is an important aspect of the state's overall energy goals, the implementation of such an alternative does not fulfill the objectives of the Proposed PROJECT and thus it was removed from inclusion as a reasonable project alternative.

Review of Relevant CPUC Programs and Decisions

Solar PV Programs

On September 2, 2010, the CPUC issued the decision[1] that authorized a 5-year solar PV program to develop up to 100 MW of 1-5 MW solar PV projects in SDG&E's service area. Twenty-six MW will be developed by third parties and owned by SDG&E, and SDG&E will execute power purchase agreements for the remaining 74 MW with independent power producers. On December 1, 2010, SDG&E filed Advice Letters 2210-E and 2211-E to establish the implementation and administration details of the competitive solicitation for IPPs and the utility-owned portion of the program.

Renewable Auction Mechanism (RAM)

On December 19 2010, D10-12-048 approved the Renewable Auction Mechanism, or RAM, which is a simplified market-based procurement mechanism for renewable distributed generation projects up to 20 MW on the system side of the meter. The Commission adopted RAM as the primary procurement tool for system-side renewable distributed generation because it will promote competition, elicit the lowest costs for ratepayers, encourage the development of resources that can utilize existing transmission and distribution infrastructure, and contribute to RPS goals in the near term. Within SDG&E territory the Commission expects SDG&E to procure 80.7 MW of eligible distributed generation.

The combination of these two decisions orders a total of 180.7 MW RPS eligible distributed generation capacity to be procured within the next 5 years by SDG&E. The developments are small scale in order to reduce the additional electrical system impacts. However, environmental impacts are more difficult to determine. The outcome of the decisions will result in an unknown mix of rooftop and ground mounted PV, and an unknown proportion of biogas based distributed generation, as well as small hydro that may require their own environmental impact assessments.

California Solar Initiative (CSI)

While the CSI program may add up to 180 MWs of Solar PV to San Diego rooftops by 2016, the CSI program is currently not RPS eligible. Its contribution therefore to RPS targets has to be heavily discounted at a rate of 3:1 because installations affect demand rather than increasing RPS eligible generation. Consequently, 180 MW of

[1] D.10-09-016

PV installed through CSI (demand side) is equivalent to 36 MW of RPS eligible wind capacity[2].

Feed in Tariff (FIT)

The feed in tariff is a technology neutral program aimed at specific water and waste water plants. The proportion allocated to SDG&E in 2008[3] has not changed and 15 MW remains unsubscribed (SDG&E 2011). Up take of the FIT has been low and there is no known change in circumstances that would lead to an increase in utilization. The recent addition of 250MW capacity to the FIT is to accommodate the expansion to include Publicly Owned Utilities such as LADWP and SMUD. As a consequence, the expansion will not contribute to SDG&E's obligation under the RPS.

Self-Generation Incentive Program (SGIP) and Biogas Based Distributed Generation (including CHP)

The CPUC has recently analyzed the cost effectiveness of various distributed generation technologies based on its adopted cost effectiveness model[4]. Incentives for biogas-based distributed generation are identical across California. Consequently, at least partially because of lower electricity rates (relative to distributed generation costs) within SDG&E territory, the current incentive scheme (SGIP) provides little or no economic advantage for potential participants (CPUC 2011). However, in 2009, the CPUC modified certain SGIP regulations[5] and, in 2010 an additional 9.5 MW of bio-gas-based distributed generation was contracted; although only 1.1 MW has been delivered. Closer examination identifies the distributed generation as either digester or landfill gas systems using fuel cell technology. At best, assuming a similar rate of up take, biogas based distributed generation may add equivalent of 127.3 MW of wind capacity by 2016.[6] Furthermore, while specific examples of biogas based distributed generation exist within SDG&E territory, modeling the environmental impacts of distributed generation biogas impacts become complex. Such an analysis is further complicated by the use of out of state biogas contracts that make the analysis of scenarios extremely speculative.

[2] Assuming capacity factors of 0.18 for solar and 0.3 for wind.
[3] D.08-09-033
[4] D.09-08-026
[5] D.09-09-048, this effectively subsided fuels cell technology by fifteen times more than Solar PV.
[6] Assuming a fuel cell capacity factor of 0.9 and fuel supply is 75% biogas. With a wind capacity factor of 0.3

References Cited

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2.4 BIOLOGICAL RESOURCES

Summary of Issues Raised

Table 2-4 provides a list of recurring comments related to biological resources and addressed by common responses.

Table 2-4 Common Biological Resources Response Topics

Common Response/Issue	Origin of Comment
BIO1: Impacts to golden eagle	A5 – U.S. Environmental Protection Agency (Comment A5-15) B3 – California Department of Fish and Game (Comments B3-19, B3-20, B3-21) B5 – California Natural Resources Agency (Comment B5-3) B7 – California State Lands Commission (Comment B7-19) C5 – Ewiiaapaayp Band of Kumeyaay Indians (Comments C5-5, C5-9) D30 – California State Parks Foundation (Comment D30-4) D34 – Natural Resources Defense Council (Comments D34-9, D34-15, D34-18, D34-24, D34-27) E2 – Iberdrola Renewables (Comments E2-10, E2-15) F66 – Lorrie Ostrander (Comment F66-16) F73 – Charles and Laurie Baker (Comments F73-21, F73-22, F73-23) F74 – Carol Cockerham (Comment F74-1) F75 – Marissa Cuero (Comment F75-1) F76 – Judy Elliott (Comment F76-2) F77 – Nick Elliott (Comment F77-1) F78 – Toni Lee Elliott (Comment F78-2) F79 – Yolanda Elliott (Comment F79-2) F80 – Lio Estrada (Comments F80-1, F80-2) F82 – Veronica Santos (Comments F82-1, F82-2) F83 – Jeanie Sepin (Comment F83-2) F84 – Alexa Adkins (Comment F84-1) F86 – Danielle Cook (Comments F86-6, F86-13) F87 – Johnny Eagle Spirit Elliot (Comment F87-1) F89 – Derik Martin (Comment F89-3) F90 – Jeffrey and Laura McKernan (Comment F90-3) F94 – Daniella Adkins (Comment F94-1) F95 – Keith Adkins (Comment F95-1) F96 – Theresa Angotti and David Thompson (Comment F96-1) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-17) F100 – Santiago de Los Santos (Comment F100-2) F102 – Ginette Gallego (Comment F102-1) F103 – Mark Hass (Comment F103-4) F106 – Aaron Quintanar (Comment F106-2) F107 – Rafael Rubio (Comment F107-1) F109 – Patricia and Elliott Stuart (Comment F109-1)

Table 2-4 (Continued)

Common Response/Issue	Origin of Comment
BIO2: Impacts to California condor	A5 – U.S. Environmental Protection Agency (Comment A5-16) D26 – Adams Broadwell Joseph & Cardozo (Comment D26-11) D34 – Natural Resources Defense Council (Comments D34-15, D34-19) F29 – Jim Wiegand (Comments F29-6, F29-9) F86 – Danielle Cook (Comment F86-6) F103 – Mark Hass (Comment F103-4) F106 – Aaron Quintanar (Comment F106-2) F108 – Steven and Laurie Squillaci (Comment F108-2)
BIO3: Impacts to bats	A5 – U.S. Environmental Protection Agency (Comment A5-17) B5 – California Natural Resources Agency (Comment B5-6) B7 – California State Lands Commission (Comment B7-12) D34 – Natural Resources Defense Council (Comment D34-16) F67 – Mark Ostrander (Comment F67-4) F86 – Danielle Cook (Comment F86-6) F103 – Mark Hass (Comments F103-4, F103-11)
BIO4: Impacts to bighorn sheep	B3 – California Department of Fish and Game (Comments B3-16, B3-17) B5 – California Natural Resources Agency (Comment B5-9) B7 – California State Lands Commission (Comments B7-3, B7-17) D26 – Adams Broadwell Joseph and Cardozo (Comment D26-12) D30 – California State Parks Foundation (Comment D30-4) D33 – Law Offices of Stephan Volker (Comment D33-14) D34 – Natural Resources Defense Council (Comment D34-20) E4 – Sempra (Comment E4-10) F46 – Howard Cook (Comment F46-29) F66 – Lorrie Ostrander (Comment F66-17) F73 – Charles and Laurie Baker (Comment F73-20) F90 – Jeffrey and Laura McKernan (Comment F90-3) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-16) F108 – Steven and Laurie Squillaci (Comment F108-2)
BIO5: Impacts to Quino checkerspot butterfly	A5 – U.S. Environmental Protection Agency (Comment A5-18) B5 – California Natural Resources Agency (Comment B5-5) D26 – Adams Broadwell Joseph & Cardozo (Comment D26-15) D33 – Law Offices of Stephan C. Volker, on behalf of Backcountry Against Dumps, The Protect Our Communities Foundation, East County Community Action Coalition, and Donna Tisdale (Comment D33-17) D34 – Natural Resources Defense Council (Comment D34-27) F20 – Brendan Hughes (Comment F20-2) F90 – Jeffrey and Laura McKernan (Comment F90-3) F106 – Aaron Quintanar (Comment F106-2) F109 – Patricia and Elliott Stuart (Comment F109-1)

Table 2-4 (Continued)

Common Response/Issue	Origin of Comment
BIO6: Lack of studies and impacts to wildlife corridors	B3 – California Department of Fish and Game (Comment B3-28) D26 – Adams Broadwell Joseph and Cardozo (Comment D26-16) D28 – Boulevard Planning Group (Comment D28-35) D33 – Law Offices of Stephan Volker (Comment D33-18) F89 – Derik Martin (Comments F89-2, F89-3) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-16)
BIO7: Adequacy of cumulative analysis	B3 – California Department of Fish and Game (Comment B3-36) B5 – California Natural Resources Agency (Comment B5-10) D26 – Adams Broadwell Joseph and Cardozo (Comments D26-11, D26-12, D26-13, D26-14) D34 – Natural Resources Defense Council (Comments D34-15, D34-21, D34-24)
BIO8: Adequacy of biological resources mitigation	A5 – U.S. Environmental Protection Agency (Comments A5-12, A5-15) B3 – California Department of Fish and Game (Comments B3-21, B3-22, B3-23) B7 – California State Lands Commission (Comment B7-19) D34 – Natural Resources Defense Council (Comment D34-27) F73 – Charles and Laurie Baker (Comment F73-23)

BIO1: Commenters expressed concern regarding impacts to golden eagle (*Aquila chrysaetos)* as a result of the Proposal PROJECT.

BIO2: Commenters expressed concern regarding impacts to California condor (*Gymnogyps californianus)* as a result of the Proposal PROJECT.

BIO3: Commenters expressed concern regarding impacts to bats as a result of the Proposal PROJECT.

BIO4: Commenters expressed concern regarding impacts to bighorn sheep (*Ovis canadensis)* as a result of the Proposal PROJECT.

BIO5: Commenters expressed concern regarding impacts to Quino checkerspot butterfly (*Euphydryas editha quino)* as a result of the Proposal PROJECT.

BIO6: Commenters noted a lack of studies and inadequate analysis of wildlife corridors.

BIO7: Commenters questioned the adequacy of the cumulative analysis.

BIO8: Multiple comments were received on the adequacy of the biological resources mitigation presented in the Draft EIR/EIS.

Common Responses

BIO1: **Impacts to golden eagle.** Multiple comments were received regarding the environmental setting, impact analysis, and mitigation measures associated with golden eagles. The Final EIR/EIS has been revised to reflect additional detail regarding the environmental setting, impact analysis, and mitigation measures associated with golden eagles. For comments related to the adequacy of mitigation for impacts to golden eagle, refer to common responses INT3 and BIO8.

Environmental Setting for Golden Eagle

Comments were received on the methods used to assess bird use and description of the environmental setting related to golden eagles for the Proposed PROJECT. Regarding the methods used to assess bird use in the project area, the applicant prepared technical studies for the purpose of documenting bird use in Tule Wind Project area. These studies were developed using methods considered adequate to characterize avian species, including golden eagle, and behavior of the avian species in the project area. Based on the bird use studies, golden eagle was considered to have low use in the project area. Raptor nest surveys from the ground, in addition to helicopter surveys in a 10-mile radius centered on the Tule Wind Project, were also conducted to identify, map, and determine the status of golden eagle nests in the vicinity (WRI 2010). This methodology was considered adequate to characterize the presence and status of golden eagle nests in the potential area of impact for the Tule Wind Project. Due to the sensitivity of golden eagle nest location information, maps of the eagle nests were not distributed to the public but were utilized in the preparation of the environmental setting and impact analysis for the EIR/EIS. In relation to the active nesting golden eagles in the vicinity of the project, supplemental information was not provided by the applicant nor in the applicant-prepared documents that described the foraging areas of each nesting pair of eagles. This information is not typically provided or required for such a project, and behavioral data necessary to determine foraging areas would require intensive, multi-year monitoring. With regard to nest location and status discrepancies in different sections of the EIR/EIS, this information has been clarified in the Final EIR/EIS. The information that appeared to be discrepancies was not, in fact, but required additional elaboration.

Regulatory Setting for Golden Eagle

Comments were received on the regulatory setting related to golden eagle, particularly related to the Draft Eagle Conservation Plan Guidance (USFWS 2011a), Draft Land-Based Wind Turbine Guidelines (USFWS 2011b), and the USFWS Final Rule for an

Eagle Act Take Permit (74 FR 46836–46879). The Final EIR/EIS has been revised to acknowledge these recent developments pertaining to the regulatory setting relevant to golden eagle. The Draft Eagle Conservation Plan Guidance and the Draft Land-Based Wind Turbine Guidelines are documents that have not been finalized and were not published during project planning or prior to the release of the Draft EIR/EIS for the Proposed PROJECT. The Final Rule for an Eagle Act Take Permit describes a process to obtain take authorization for non-purposeful take of eagles and is referenced in the Final EIR/EIS.

Impact Analysis for Golden Eagle

Comments were received on the impact analysis for golden eagles indicating that the Proposed PROJECT would result in either greater impact or less impact than is concluded in the Draft EIR/EIS. A discussion of the rationale for the impact analysis for golden eagles in the EIR/EIS is provided below.

Comments were received on the impact analysis pertaining to impacts and mitigation for the impacts on foraging habitat for golden eagles resulting from the Tule Wind Project. While the loss of potential foraging habitat for golden eagles would result from construction of the Tule Wind Project (approximately 725 acres of total temporary and permanent impacts to various land covers), this acreage of potential foraging habitat was not considered significant relative to the remainder of available foraging habitat in the largely undeveloped region in and around the Tule Wind Project. Impacts on vegetation communities as a result of the implementation of the project are fully mitigated by the restoration and preservation of comparable habitat. The impacts are relatively small, of linear configuration, and are not focused within a particular territory of a pair or number of pairs of golden eagles.

Comments were received stating that the low bird use data, combined with the supposition of a low prey base, results in a low risk of turbine collision for golden eagles in the project area. This was the basis of the West (2010) study. This study also compared the project data to other wind farm areas and concluded a low risk of turbine collision for eagles from the Tule Wind Project. In determining low risk for golden eagle collision, the West (2010) study calculated risk exposure indices that incorporated distance to the turbines and turbine exposure metrics. Although this study determined a low risk for golden eagles at the Tule Wind Project, it was not based on specific data on use areas for the birds nesting closest to the Tule Wind Project area. Risk could be higher if the birds in the vicinity are spending a greater percentage of their time foraging in or around the turbine strings. No specific studies, mapping, monitoring, or telemetry data has been collected to indicate use areas or

behavioral patterns for these birds. In the absence of specific use area information, the conclusions of the West (2010) study were used as just one indication of potential risk to golden eagles. Given the documented disagreement among experts on golden eagle behavior and collision risk (see also common response INT2 regarding disagreement among experts) and the lack of more specific data on nesting golden eagles in the vicinity, the conclusions on potential risk to golden eagles and the significance determination for Impact BIO-10 for the Tule Wind Project was based on the compilation of the information available, including species ecology, bird use data, encounter rate index, nest survey information, and the species' population and regulatory status.

With regard to the comment that zero risk to individual birds should not be the threshold for significance, a zero risk standard was not applied. The EIR/EIS found potential risk to eagles in the northern portion of the Proposed PROJECT. In the absence of additional, site-specific data to conclude otherwise, it was determined that risk to at least one pair of eagles would result from the Tule Wind Project. Given the current declining status of the golden eagle population in the region, the loss of a breeding pair could have greater implications on the population than the simple loss of an individual bird. As described in the EIR/EIS:

> Studies of the breeding population and locations within San Diego County have been conducted over the past 70 years. The population within the county in 1900 was estimated at 108 pairs (Unitt 2004). It remained at approximately this population size for a number of years but has shown a gradual decline since the 1950s and is now estimated at approximately 50 pairs (Unitt 2004; Scott 1985; WEST 2010b). As the population of the species declines within the county, loss of breeding adults becomes of greater concern.

Contributing to the decline of a population of golden eagles in a region with a documented decline was considered a significant, unmitigable impact. This contribution to the population decline was determined based on the potential loss of a breeding pair of golden eagles.

Based on the analysis and rationale provided in the EIR/EIS, the northwestern portion of the Tule Wind Project was determined to pose a higher risk of collision to golden eagles. Removal of these turbines under Tule Wind Alternative 5, based on the analysis in the EIR/EIS, would reduce the risk of turbine collision to golden eagles. Therefore, the Final EIR/EIS has not been revised to reflect this comment.

Comments were received on the permitting of take for golden eagles. The EIR/EIS document is an environmental document developed pursuant to CEQA and NEPA. The EIR/EIS does not authorize or permit the take of golden eagles under the Bald and Golden Eagle Protection Act or the California Fish and Game Code.

Related to the risk of collision for eagles related to wind turbines in Mexico, see the discussion below and also refer to common response BIO7, which provides additional discussion on the cumulative analysis. As described in the Department of Energy EIS for the ESJ Project (DOE 2010):

> Although data on avian use patterns is lacking for the ESJ Wind project area, there are no known major migration corridors or habitats such as wetlands and riparian areas that would support large concentrations of birds. Although the potential exists for operation of the ESJ Wind project to result in direct mortality of birds due to collisions with wind turbines, data necessary to fully assess the significance of this impact was not available during preparation of this EIS. Although the ESJ Wind project would not be located within known migration corridors or avian concentration zones, construction of the Phase I wind turbines could impact up to 7,500 acres (3,035 ha) of chaparral, pine forest, and possibly some desert communities in Mexico that may support birds protected under the MBTA (CPUC/BLM 2008b); and future phases would increase this development footprint. Construction of the ESJ Wind project could result in the destruction or abandonment of active bird nests and operation of the turbines could result in the loss of birds that collide with the turbine blades. Raptors, in particular, may be vulnerable to collisions with wind turbines when hunting prey, depending on the ground-to-rotor clearance and siting of turbines in relation to rim edges (raptor use has been shown to be higher on the prevailing upwind sides of ridges and turbines sited away from rim edges may reduce raptor fatality rates) (CPUC/BLM 2008b). Any incidental take of raptors or other migratory birds in Mexico, and/or environmental protection measures to prevent incidental take, would be under the authority of the Mexican Environmental, Natural Resources, and Fisheries Ministry. Therefore, while impacts to species protected under the MBTA could potentially result from ESJ Wind project activities in Mexico, it is expected that such impacts would be addressed through the Mexican permitting processes. In addition to birds, migratory bat species could be adversely affected by the ESJ Wind project turbines. Projected impact levels are unknown and could vary based on such factors

> as regional migratory patterns, patterns of local movements through the ESJ Wind project area, and the response of bats (both individually and collectively) to turbines (CPUC/BLM 2008b). Any incidental take of bats in Mexico, and/or environmental protection measures to prevent incidental take, would be under the authority of the Mexican Environmental, Natural Resources, and Fisheries Ministry. Therefore, while the potential for impacts may exist, it is expected that such impacts would be addressed through the Mexican permitting processes.

The Final EIR/EIS has been revised to incorporate this information.

Mitigation Measures for Golden Eagle

Comments were received on Mitigation Measure BIO-10e (post-construction bird and bat species mortality monitoring and reporting) indicating that the duration of monitoring required by the measure was in excess of agency guidelines. Based on these comments, the mitigation measure has been revised to require 2 years of monitoring, consistent with CDFG and California Energy Commission (CEC) guidelines. Also consistent with the guidelines, the measure now indicates that additional years of monitoring may be required by the wildlife agencies, as determined from the results of the 2 years of monitoring data.

Comments were received on Mitigation Measure BIO-10g (monitoring of golden eagle nests in the area to track productivity) indicating that 10 years of annual monitoring is not necessary and excessive. The purpose of the 10 years of productivity monitoring is to develop multi-year monitoring that demonstrates continued and unaffected productivity of the area birds after the project is constructed. Mitigation Measure BIO-10g has been revised in the Final EIR/EIS to allow the methods and specifications of the monitoring to be as described in the agency-approved Avian and Bat Protection Plan, but the 10-mile area and 10 years of annual monitoring remains unchanged.

Based on comments received on mitigation measure detail, specifications for the content of the Avian and Bat Protection Plan has been added to Mitigation Measure BIO-10h. This includes requiring biological monitoring, construction setbacks from nests, surveying and monitoring methodologies, phased construction, funding information, and technical review committee formation.

Comments were received on Mitigation Measure BIO-10i (written agency concurrence documenting compliance with regulations governing golden eagle)

indicating that such agency concurrence was not feasible. Based on these comments, Mitigation Measure BIO-10i has been revised in Section D.2 of the Final EIR/EIS. These changes and additions to the EIR/EIS do not raise important new issues about significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines and under NEPA, do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

BIO2: **Impacts to California condor.** Multiple comments were received regarding the potential for impacts to California condor from the Tule Wind Project. The Final EIR/EIS has been revised to include additional information to substantiate the low likelihood for occurrence of California condor in the project area and the not adverse, less-than-significant impact determination for this species. With regard to the potential impacts of other reasonably foreseeable cumulative projects on California condor, refer to common response BIO7 related to the cumulative analysis.

As described in the EIR/EIS in Section D.2.1, Existing Setting, and applicant-prepared documents, California condor has a low potential to occur in the project area. In addition to the information provided in the Final EIR/EIS and applicant-prepared documents, the draft Biological Assessment for the Tule Wind Project (HDR 2010) states:

> The USFWS listed the California condor as an endangered species in 1967 under a precursor to the ESA. There are two experimental release populations of California Condors in the United States: one in Central California and one in Northern Arizona/Southern Utah (NatureServe 2007). There is also one experimental release population located in Baja California, Mexico, approximately 100 miles (160 km) south of the United States and Mexico border. As of July 17, 2009 there were 75 birds in the Arizona/Utah population, 89 in central California, and 16 in Baja California (ADFG 2009). All of these populations are releases from a captive breeding program and are defined by USFWS as scientific populations of the birds. All of the individuals are tagged and tracked by the San Diego Zoological Society.
>
> The closest document[ed] CNDDB occurrence of California condor was at the SESPE Condor Sanctuary, which is approximately 178.5 miles from the project area. Additionally, a single female captive-born California condor was observed April 4, 2007 by two hikers along the Pacific Crest

> Trail northwest of the proposed project. The same bird was also seen on at least two occasions along Highway 79, further north from the proposed project (San Diego Union Tribune 2007). The condor had been fitted with a satellite tracking device by the San Diego Zoological Society and was monitored in San Diego County, riding the thermals above Cuyamaca Rancho and Anza Borrego State Parks. She was born in 2004 at the San Diego Zoo and released in 2005 in Sierra San Pedro de Martir National Park in Baja California. The condor flew 100 miles (160 km) from the release site and was tracked back to Baja three days later. This is the only record of a condor entering the U.S. from Baja California, and the first condor seen in San Diego County since 1910 (San Diego Union Tribune 2007). There have been no observations of condors in San Diego County other than this one three-day excursion.
>
> The prime cause for concern with California condors is the potential for the condors to come into contact with overhead transmission lines (East County Magazine 2009). Condors are conditioned to avoid power lines while being raised in captivity by using mock power lines and human aversion training to cause condors to be wary of man-made objects (ADFG 2009).
>
> Typically, California condors require mountainous areas and in San Diego County occurred in the coastal foothills and slope. They also require large trees and cliffs for roosting. The potential for the California condor to occur within the project action area is extremely low (HDR 2010c). As such, the project will have no [e]ffect on the California condor.

Based on historical information as summarized here and in the Final EIR/EIS, California condor was determined to have a low potential to occur in the project area. The closest location of California condors to the project area is the Mexican release site in the Sierra San Pedro de Martir National Park, approximately 100 miles south of the project area. Based on information from the San Diego Zoo's Applied Animal Ecology Division, approximately four to eight condors will be released annually in the Sierra San Pedro de Martir National Park until the anticipated carrying capacity of 20 pairs is reached (Zoological Society of San Diego 2011). According to a February 2011 status report for the condor recovery program, the Sierra San Pedro de Martir location currently supports 20 released captive bred condors; however, it is unknown how many pairs this represents (California Condor Recovery Program 2011). It is assumed that additional releases are planned for this area in accordance with the plans of the San Diego Zoo. According to the

recovery plan for the species (USFWS 1996), paired birds generally tend to forage most frequently in areas relatively close to the nest and do not travel more than 30 to 45 miles from the nest site, although they have been known to travel greater distances during the nonbreeding season. During the nonbreeding season, condors may expand their movements. Based on this information and information presented previously and in the Final EIR/EIS, California condors are not considered likely to use any area for foraging or nesting in the vicinity of the Proposed PROJECT. Additionally, any potential impacts to California condor from the ESJ Wind Project in Mexico would occur in Mexico to California condors from the Mexican condor population; therefore, the ESJ Gen-Tie Project would have no effect on this species.

Condor use of the project area would be related to the availability of roost and foraging opportunities. According to the recovery plan (USFWS 1996), it was estimated that over 95% of the condor's diet consists of cattle, domestic sheep, ground squirrels, mule deer, and horses. In addition, over half of the observations were of condors feeding on cattle, predominantly calves. This is in part due to the preponderance of cattle availability for food. There appears to be a preference for deer over cattle for foraging when deer carcasses are available. Within the Proposed PROJECT area, although there is some active cattle ranching, the majority of the land is undeveloped and does not provide abundant food sources that would serve as an attractant to the condor. Foraging habitat occurs in open terrain of foothill grassland and oak savannah but condors would also be expected to take advantage of locally abundant food sources wherever it occurs within their range. Roosting areas often are near foraging areas. Roost sites are generally composed of cliffs, tall conifers, and dead snags. Based on this information, marginally suitable forage and roost sites exist in the project area; however, due to the distance from the Mexico release location, the small size of the current and future Mexico population, and the abundance of suitable habitat and forage around the Mexico release location, the potential for the species to occur in the project area is low and the impact to the species is not adverse and less than significant. In addition, the aversion training that the released birds receive will further reduce the potential for the condor to occur in the project area.

BIO3: **Impacts to bats.** Multiple comments were received regarding the impact on bats and bat turbine collision associated with the Tule Wind Project. The Final EIR/EIS has been revised to reflect additional survey results for bats associated with the Tule Wind Project. This supplemental bat data has been incorporated in EIR/EIS Sections D.2.1, Environmental Setting, and D.2.3, Environmental Effects. For comments related to the adequacy of mitigation for impacts to bats, refer to common response INT3 and BIO8. In terms of the impact analysis for bats, the wind turbines were

considered to present a potential risk to bats for both collision and barotrauma impacts. The Final EIR/EIS has been revised to clarify this point.

These changes and additions to the EIR/EIS do not raise important new issues about significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines and under NEPA, do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

BIO4: **Impacts to bighorn sheep.** Multiple comments were received regarding the potential for bighorn sheep to occur in the Proposed PROJECT area and the potential for direct and indirect impact to this species. As described in EIR/EIS Section D.2.1, Existing Setting, and applicant-prepared documents, bighorn sheep are not considered to occur in the Proposed PROJECT area. Suitable habitat is not present in the project area, radio-collared bighorn sheep have never been recorded in the project area based on extensive ongoing monitoring conducted by the CDFG, and communications with U.S. Fish and Wildlife Service (USFWS) and CDFG determined a very low potential for presence of bighorn sheep in any of the Proposed PROJECT areas.

As described in the draft Biological Assessment for the ECO Substation Project (SDG&E 2010):

> The CNDDB, which was searched in August 2010, showed the nearest occurrence of PBS 3.6 miles from the Proposed Project.2 In April 2008, Jeffry Coward of Insignia Environmental contacted Guy Wagner of the Carlsbad USFWS) Office to discuss the possibility of PBS occurring within the Proposed Project area. Mr. Wagner is a specialist in PBS for the USFWS and has experience working in and near the Proposed Project area. Mr. Wagner stated the Proposed Project area is southwest and at least 15 miles outside of permanently occupied habitat of the Carrizo Canyon subpopulation and is west of the In-Ko-Pah Gorge and the Interstate-8 "island" areas that receive transient bighorn sheep use. In addition, there are no historic observations of bighorn sheep by USFWS in the area, as published in the Recovery Plan for this Distinct Vertebrate Population Segment (USFWS 2000). In July 2009, Jeffry Coward contacted Dr. Robert Roy Ramey of Wildlife Science International, Incorporated. Dr. Ramey is a vertebrate research scientist and has conducted numerous studies of PBS in San Diego and San Bernardino counties. Dr. Ramey stated that the Proposed Project area "is extremely unlikely to receive even

> transient use by bighorn sheep". Thus, bighorn sheep surveys were not recommended for the Proposed Project. According to the Recovery Plan for this DPS, there are no historic observations of bighorn sheep in the Proposed Project area (USFWS, 2000). Because PBS were not detected during biological resource surveys in the Proposed Project area, the Proposed Project will not likely adversely affect PBS.

As described in the draft Biological Assessment for the Tule Wind Project (HDR 2010):

> There is a low potential for Peninsular bighorn sheep to occur within the proposed project area because there is no suitable habitat for Peninsular bighorn sheep in the project area (HDR 2010c). The nearest documented individual recorded in the last 70 years was 0.79 mile from the action area. Bighorn sheep have not been documented in McCain Valley (USFWS 2010b), and none were observed during the 2005 through 2009 biological surveys of the project area (HDR 2010c). Additionally, there is a lack of sufficient escape terrain within the vicinity, and bighorn sheep have never been recorded anywhere in which the proposed turbines would be visible from less than a half mile (HDR 2010c). The project area is not located within designated Peninsular bighorn sheep Critical Habitat; however, designated Critical Habitat Unit 3 is located approximately 800 feet from the eastern extent of the project. Unit 3 contains the physical and biological features that are essential for Peninsular bighorn sheep habitat, including a range of vegetation types, foraging and watering areas, and steep to very steep, rocky terrain with appropriate elevations and slope; and Unit 3 is currently occupied by Peninsular bighorn sheep (74 FR 17288-17365). The portion of Unit 3 within a half mile of the project area does not contain the constituent elements required for Peninsular bighorn sheep.

Based on this information, the Draft EIR/EIS determined the Proposed PROJECT would not result in an adverse impact and the impact to bighorn sheep would be less than significant. Additional discussion has been added in the Final EIR/EIS to substantiate the conclusions regarding bighorn sheep, which remain unchanged from the Draft EIR/EIS. Comments related to the effects and analysis of climate change on bighorn sheep are addressed in common response CC2.

With regard to comments on effects of the ESJ Wind Project in Mexico and bighorn sheep, the Department of Energy EIS for the ESJ Project states (DOE 2010):

> The ESJ Wind project would consist of numerous wind turbines dispersed over a large geographic area in the general vicinity of La Rumorosa, Northern Baja California, Mexico. The wind development area would not be fenced; therefore, cross border movement of terrestrial wildlife species in the area would not be impeded by the ESJ Wind project but is currently impeded by the U.S.-Mexico Border Fence where present.

Based on input from the wildlife agencies pertaining to bighorn sheep movement, very little or no cross-border movement of sheep currently occurs; therefore, it is not anticipated that any impact from the ESJ Wind Project in Mexico would impact individuals of this species in the United States.

Of note related to comments on bighorn sheep, the reduced turbine alternative (Tule Alternative 5 Reduction in Turbines), removes, among others, the 11 easternmost turbines that comprise the proposed R-string of turbines, which would further distance the Tule Wind Project from known occupied bighorn sheep habitat east of the project area. Although the project as proposed would not result in an adverse impact and the impact to bighorn sheep would be less than significant, the reduced turbine alternative would allow for a larger buffer distance between the project area and species occurrence locations, BLM Areas of Critical Environmental Concern (ACECs), and designated bighorn sheep critical habitat.

BIO5: **Impacts to Quino checkerspot butterfly.** Additional detail has been added in the Final EIR/EIS to address comments on the impact analysis pertaining to Quino checkerspot butterfly. For comments related to the adequacy of mitigation for impacts to quino checkerspot butterfly, refer to common responses INT3 and BIO8. Comments related to the effects and analysis of climate change on quino checkerspot butterfly are addressed in common response CC2. The effects of reasonably foreseeable cumulative projects, including Mexico wind projects, on Quino checkerspot butterfly are addressed in EIR/EIS Section F, Cumulative Scenario and Impacts.

The draft Biological Assessment for the ECO Substation Project (SDG&E 2010) describes the following related to Quino checkerspot butterfly in the ECO Substation Project area:

> QCB and larval host plant populations were observed during 2009 and 2010 QCB surveys within the 138 kV transmission line corridor. The clay soils north of Jacumba Peak support a large, dense population of dot-seed

> plantain mixed with Palmer's grappling-hook (Pectocarya palmeri) and pectocarya (Pectocarya spp.).

The draft Biological Assessment for the ECO Substation Project (SDG&E 2010) describes the following related to designated Quino checkerspot butterfly critical habitat in the ECO Substation Project area:

> The ECO Substation, SWPL loop-in, and Boulevard Substation rebuild sites are not located within critical habitat for the QCB; however, the proposed 138 kV transmission line corridor crosses through the Jacumba Unit of QCB critical habitat for approximately 3.74 miles. Ten poles (SP 66 through SP 77) will be constructed within the 3.74-mile section. Approximately 0.7 mile of the 3.74 miles (from approximately SP 72 to SP 77) provides all of the PCEs described previously, including host plants. The remainder of the critical habitat crossed by the Proposed Project provides all of the PCEs described except for the host plants, which are absent in that area of the Proposed Project.

The draft Biological Assessment for the ECO Substation Project (SDG&E 2010) describes the following related to the impact analysis for the ECO Substation Project:

> [D]irect effects will include the permanent loss of approximately 2.82 acres of occupied QCB habitat for the construction of poles, maintenance pads, and access roads. This will include the permanent loss of vegetation (larval host plants and adult nectaring plants) that supports the species. Adult QCB individuals may also be killed during construction activities in occupied QCB habitat. A total of 2.27 acres of this habitat is also designated as critical habitat.

Related to the impact analysis specific to the Tule Wind Project, the draft Biological Assessment for the Tule Wind Project (HDR 2010) states:

> The majority of direct adverse effects from construction will occur through the direct loss of habitat. The project will result in the loss of 23.6 acres of QCB habitat within the 1 km movement radius of the 2010 QCB observation, which will be permanently impacted from installation of the footings of the wind turbines, the O&M building, power lines, and other ancillary facilities. Temporary impacts to habitat will occur from the clearing and grading of sites that will be restored according to the Habitat Restoration Plan, which will be reviewed and approved by the USFWS (Section 1.7.1). Construction

> of the project will temporarily impact 5.2 acres of QCB habitat within the 1 km movement radius of the 2010 QCB observation.

This additional detail has been incorporated in the impact analysis in the Final EIR/EIS. These changes and additions to the EIR/EIS do not raise important new issues about significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines and under NEPA, do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

BIO6: **Lack of studies and impact to wildlife corridors.** Multiple commenters noted either the lack of studies and/or inadequate analysis of impacts to wildlife corridors. Section D.2.1 of the Final EIR/EIS has been revised to incorporate additional discussion regarding the environmental setting for wildlife corridors and movement; however, this additional discussion does not substantially change the environmental setting from that assessed in the Draft EIR/EIS. The environmental setting for wildlife corridors and movement was developed based on a review of applicant-prepared documents, SDG&E Sunrise Powerlink environmental documents, BLM East San Diego County Resource Management Plan, and the East County Multiple Species Conservation Program map and supporting information.

According to the significance criteria/indicators established by the EIR/EIS, a significant impact would occur if the project would:

> Interfere substantially with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

In consideration of this criterion relative to the project's existing setting and the Proposed PROJECT, the project area was considered largely unconstrained from a wildlife movement perspective. Although implementation of the Proposed PROJECT may establish wildlife movement constraints in the project area beyond the level that currently exists, the Proposed PROJECT was not considered to "interfere substantially with the movement" of wildlife. Many of the components of the project (i.e., transmission lines, access roads, turbine strings) were considered to be permeable to wildlife movement.

As described for the Tule Wind Project in the Final EIR/EIS:

> There is literature that describes wind project areas as creating a behavioral avoidance area, thereby establishing a barrier in the aerial habitat used by birds and bats (Drewitt and Langston 2006). Typical avian usage of the site relative to the turbine heights is provided below that suggests a majority of the bird usage on the site is below the direct rotor swept area of the turbines. Avoidance of aerial habitat by bird and bat species would be a species-specific behavior response to the Tule Wind Project for which sufficient data is not available to evaluate. Avoidance of turbine rotor swept areas by bird or bat species using the aerial habitat at the height of the rotor swept area has the potential to result in movement effects for these specific species; however, such avoidance behavior would reduce the potential effects of collision to those species as assessed under BIO-10. Overall based on the information available and based on a significance criteria that specifically relates to effects on "linkages or wildlife movement corridors," the Tule Wind Project would not have an adverse impact on linkages or wildlife movement corridors. Under CEQA, this impact would be less than significant (Class III).
>
> Typical wildlife species expected to move through the Tule Wind Project area include mule deer, mountain lion, bobcat, coyote, small mammals, reptiles and birds. Although these species may temporarily avoid areas of the project during construction, long-term adverse effects are not anticipated due to animal habituation to the buildings and structures. Studies conducted at Foote Creek Rim in Wyoming have not demonstrated any long-term displacement effects on pronghorn antelope, and use of the area has not declined since the construction of the wind energy project (BLM 2005). The relatively wide placement of the turbines and low anticipated level of human operation is not expected to preclude any forms of movement for non-avian or bat migrating species. Many avian species also will likely be unaffected due to the height and spacing of the turbines. The effect of the Tule Wind Project on wildlife movement resulting from electrocution or collision with the transmission lines and operating turbines by special-status avian species is addressed in Impact BIO-10. Based on the 1.5 to 3 MW turbine size proposed for the Tule Wind Project, a majority of the bird species observed within the proposed project area fly beneath the lowest rotor height (164 feet aboveground). The average distance between turbine rotor tips in this project is 623 feet.

> Peninsular bighorn sheep are not expected to use the project area (see the Environmental Setting); therefore, the movement of this species is not anticipated to be affected by the Tule Wind Project.

Where project components were not considered permeable to wildlife movement (i.e., substations), movement around these components was considered unconstrained and therefore not interfering with movement. The effects of collision with project components (and therefore interference of wildlife movement) was addressed separately under Impact BIO-10. In terms of interference with established wildlife corridors, no established corridors have been documented; therefore, it was determined that no significant impact to established corridors would occur.

BIO7: **Adequacy of cumulative analysis.** Comments related to the scope of the Proposed PROJECT and projects considered in the cumulative analysis are addressed in EIR/EIS Section F.2, Applicable Cumulative Projects and Projections, and common response CUM1. Regarding comments on the consideration of specific wind projects in the EIR/EIS, all reasonably foreseeable projects in the cumulative analysis area were addressed, including the Ocotillo Wind Express and ESJ Wind projects (see EIR/EIS Section F). Additional discussion and detail has been added in the Final EIR/EIS.

The cumulative analysis found that adverse and significant unmitigable impacts (Class I) would occur from the reasonably foreseeable cumulative projects for Impacts BIO-5 (direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants), BIO-7 (direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife), and BIO-10 (presence of transmission lines and wind turbines may result in electrocution of, and/or collisions by, listed or special-status bird and bat species). No higher level of significance can be assigned to an impact. Additionally, the EIR/EIS included a full evaluation of the potentially significant impacts along with any reasonable mitigation to reduce those impacts—regardless if the impacts were determined to still be adverse and significant.

Regarding impacts to listed or special-status plants and animals (Impacts BIO-5 and BIO-7), the number and extent of the reasonably foreseeable cumulative projects have the potential to affect the range or populations of plants and animals in this region such that mitigation would not reduce the impact below a level of significance. The status and trends for plant and animal species in this analysis was based on the accepted federal, state, and other rankings for sensitivity, which is generally used to

signify the imperilment status of species. The significance of an impact to a particular species (e.g., number of individuals lost, acreage of suitable habitat affected) is evaluated in relation to the species' status. For example, the loss of a federally endangered species is a more significant impact than the loss of the same number of a California Species of Special Concern. In this way, the status and trends for plant and animal species is included in the analysis for biological resources, both for the Proposed PROJECT (Section D.2) and reasonably foreseeable cumulative projects (Section F). Based on an analysis that incorporates status and trends of plant and animals species, the impact analysis determined that the reasonably foreseeable cumulative projects would result in an adverse and significant unmitigable impact to special-status plant and animal species.

Landscape-level considerations, like habitat fragmentation, are considered at the cumulative level, and the cumulative analysis in the EIR/EIS states the following:

> In order for a cumulative impact to special-status wildlife species to occur, the cumulative projects would have to result in the loss of the same special-status plant species or their habitat as the Proposed PROJECT such that those species become more limited in their distribution, population size, or available suitable habitat within the analysis area.
>
> The Proposed PROJECT and the reasonably foreseeable cumulative projects are situated in a transition zone between the Peninsular Ranges subregion in the west and the Sonoran Desert subregion in the east. As such, the cumulative analysis area is located near or at the edge of the known range of several special-status wildlife species. The Proposed PROJECT combined with the reasonably foreseeable cumulative projects, despite species avoidance, minimization, and mitigation measures that would likely be implemented by each project, would have the potential to reduce the distribution and/or the overall population size of one or more of these special-status wildlife species such that they are vulnerable to environmental variability and are at a higher risk of becoming imperiled. The Proposed PROJECT combined with the reasonably foreseeable cumulative projects would, therefore, result in an adverse cumulative impact and, under CEQA, a direct significant and unmitigable cumulative impact to special-status wildlife species due to the potential reduction in the distribution and reduction in overall species populations in the cumulative analysis area (Class I).

Regarding impacts to birds and bats from collision with transmission lines and wind turbines (Impact BIO-10), the number and extent of transmission- and wind energy-related reasonably foreseeable cumulative projects have the potential to increase the risk of collision to avian and bat species above the level of collision risk associated with the Proposed PROJECT, which was stated in the EIR/EIS to be an adverse and significant unmitigated impact (Class I). This cumulative analysis considered risk associated with proposed wind projects in San Diego County, Imperial County, and in Mexico. For golden eagles, the Proposed PROJECT was considered to result in an adverse and significant unmitigated impact (Class I) due to the risk of collision for this special-status species. Under the cumulative analysis, an adverse and significant unmitigated impact to golden eagles would result from the wind- and transmission-related reasonably foreseeable cumulative projects in the analysis area, which includes wind projects in Imperial County and Mexico; however, insofar as impacts occur to the United States associated with wind projects in Mexico only. As described in common response PD2, federal, state, and local agencies do not have jurisdictional authority in Mexico and therefore would not be able to require and/or enforce conditions of approval or feasible mitigation for development projects in Mexico. See common response PD2 for greater detail.

BIO8: **Adequacy of biological resources mitigation.** Comments related to the deferral of mitigation are addressed in common response INT3. In crafting mitigation measures for projects that span multiple jurisdictions, flexibility has been incorporated into the mitigation measure text, and greater specificity and detail for all mitigation measures is provided in the mitigation monitoring, compliance, and reporting table (EIR/EIS Table D.2-12), which identifies the measure, the measure location, the reporting action, effectiveness criteria, responsible agency, and timing. Where possible based on information available, the Final EIR/EIS has been revised to incorporate additional detail into the mitigation measures for biological resources. The overseeing jurisdictional entity is ultimately responsible for reviewing and approving mitigation adequacy, location, effectiveness criteria, funding allocation, and implementation consistent with their own requirements. The detail provided in the mitigation measures as written in the Final EIR/EIS is considered to provide information sufficient for the evaluation of effects and significance under NEPA and CEQA.

Comments specific to golden eagle mitigation measures are addressed in common response BIO1 and revisions to specific measures in the Final EIR/EIS. In addition, a draft Avian and Bat Protection Plan for the Tule Wind Project has been prepared and is under review with USFWS (per Tule Wind, LLC), which at a minimum will meet the criteria for this plan as described in Mitigation Measure BIO-10b.

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2.5 VISUAL RESOURCES

Summary of Issues Raised

Table 2-5 provides a list of recurring comments related to visual resources and addressed by common responses.

Table 2-5 Common Visual Resources Response Topics

Common Response/Issue		Origin of Comment
VIS1:	Adequacy of visual simulations	B8 – County of San Diego, Attachment A (Comment B8-15) D28 – Boulevard Planning Group (Comment D28-60) F90 – Jeffrey and Laura McKernan (Comment F90-8) F104 – Caroline Isaacs (Comment F104-5)
VIS2:	Consideration of the Sunrise Powerlink Project in the Proposed PROJECT analysis	D28 – Boulevard Planning Group (Comments D28-57, D28-58) E1 – Iberdrola Renewables Inc. (Comment E1-25a) E2 – Iberdrola Renewables Inc. (Comment E2-12) F67 – Mark Ostrander (Comment F67-15)
VIS3:	Visual impacts to Anza-Borrego Desert State Park	D30 – California State Parks Foundation (Comments D30-2, D30-3)
VIS4:	Visual impacts resulting from new sources of lighting	E1 – Iberdrola Renewables, Attachment C (Comments E1-19, E1-41) F46 – Howard Cook (Comment F46-12) F81 – Michael and Debbie Moran (Comment F81-14) F90 – Jeffrey and Laura McKernan (Comment F90-4) F91 – Crosby Milne (Comment F91-14) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-10) F103 – Mark Hass (Comment F103-5) H1 – Steve Washer (Comment H1-11)

VIS1: Visual simulations are inadequate because they do not reflect the entirety of the Proposed PROJECT. For example, in the visual simulations for Key Observation Point (KOP) 1 (Figures D.3-6B through D3-6D), the entrance road, water tank, and SWPL loop-in are not depicted. In addition, in Figure D.3-6D, the ECO Substation, entrance road, water tank, SWPL loop-in, and transmission line are not depicted.

VIS2: The approved Sunrise Powerlink Project should be considered in the visual analysis of the Proposed PROJECT. In addition, because the 500-kilovolt (kV) Sunrise Powerlink transmission line would be the dominant modification in the visual landscape of the McCain Valley, the visual impacts of the Tule Wind Project would be diminished; therefore, the EIR/EIS has overstated the visual impacts associated with the Tule Wind Project.

VIS3: Visibility of the Tule Wind Project will result in significant visual impacts to Anza-Borrego Desert State Park.

VIS4: Proposed turbine lighting (Tule Wind Project) would result in significant visual impacts that would affect the existing nighttime sky environment.

Common Responses

VIS1: **Adequacy of visual simulations.** In determining the severity of visual impacts from each KOP, the Draft EIR/EIS analysis considered all components of the relevant project in question and the impact determination was not based (or restricted) wholly on those project elements seen in the visual simulations. The KOPs and supporting simulations prepared by each of the project applicants' consultants were determined to provide photorealistic representations for various project components, covering a range of viewing locations and viewer types. However, since each of the applicant's consultants was responsible for, and focused on, their separate, respective projects, the KOP view orientations and simulations were found to be limited and deficient in a number of instances with respect to illustrating the full visual effects of the Proposed PROJECT or alternatives from various KOPs (applicant-prepared visual simulations are further discussed in EIR/EIS Section D.3.1, Visual Simulations). In instances where limitations occur, the EIR/EIS further documents the degree of views potentially affected by the Proposed PROJECT or alternatives (see EIR/EIS Section D.3.3.3, Direct and Indirect Effects). For example, the document provides supplemental photographs with narrative notations in EIR/EIS Section D.3 figures to cover such instances and convey to the reader those project elements that do not appear in the simulation but would contribute to the anticipated visual change. In addition, the impact analysis (EIR/EIS Section D.3.3.3, Direct and Indirect Effects) describes the anticipated visual change caused by project components not appearing in the applicant-prepared visual simulations but visible in real-life from the applicable KOP.

VIS2: **Consideration of the Sunrise Powerlink Project in the Proposed PROJECT analysis.** As identified in EIR/EIS Section F, Cumulative Impacts (Table F-2), SDG&E's 500 kV Sunrise Powerlink Project (currently under construction in phases) is considered a cumulative project; therefore, the project is considered in the visual resource analysis under cumulative impacts. The visual impacts of the Sunrise Powerlink Project are not considered in the visual resources section of the Draft EIR/EIS (Section D.3) as the presence of the 500 kV transmission line and structures are not part of the existing environmental setting. Instead, the visual baseline condition considered in Section D.3 consisted of the existing visual landscape

encountered during preparation of the Draft EIR/EIS and during visual resources fieldwork conducted during April 2010.

VIS3: **Visual impacts to Anza-Borrego Desert State Park**. Impacts to visual resources resulting from construction and operation of the Tule Wind Project are discussed in Section D.3, Visual Resources, of the EIR/EIS. As discussed in Section D.3, the selection of KOPs from which to analyze the anticipated visual impacts of the Tule Wind Project in the Draft EIR/EIS was a collaborative effort between the applicant, the applicant's environmental consultant, the BLM, and the County. KOPs are chosen based on the range of sensitive viewers, distance zones, viewing conditions, and visual changes that would result from the Proposed PROJECT or alternatives. While a KOP from the Anza-Borrego Desert State Park was not selected for analysis within the Draft EIR/EIS, a map depicting the viewshed of the Tule Wind Project was included (see Figure D.3-2A) (an updated viewshed depicting the modified layout of the Tule Wind Project was prepared and is included in the Final EIR/EIS (see Figure D.3-2B)). Subsequent to public review of the Draft EIR/EIS, three representative KOPs (KOP14a, Carrizo Badlands Overlook; KOP 14b, Palm Spring; and KOP 14, Sombrero Peak) from within Anza-Borrego Desert State Park were selected with assistance from the California Natural Resource Agency, Department of Parks. These KOPs are included in the Final EIR/EIS in order to describe the visual effects anticipated to occur to State Park lands resulting from construction and operation of the Tule Wind Project. The visual resource impact analysis pertaining to KOPs 14a, 14b, and 14c is included in Final EIR/EIS Section D.3, Visual Resources (see Section D.3.3.3, Impact VIS-1, VIS-3, and VIS-4 for the Tule Wind Project).

Impacts to wilderness and recreation areas resulting from construction and operation of the Tule Wind Project are assessed in Section D.5, Wilderness and Recreation, of the EIR/EIS.

VIS4: **Visual impacts resulting from new sources of lighting.** As stated in Section D.3, Visual Resources (Tule- VIS-4), the height of the turbines and the repetitive flashing of obstruction lighting would make these lights a strong and highly visible, constant source of light for residents in the McCain Valley and Boulevard areas, and nighttime views for these residents would be affected. While the project area does contain varied topography, wind turbines would be located primarily on ridgelines and, due to anticipated height of turbine towers, residents in the surrounding area would be afforded views of the turbines at inferior viewing angles. As described in the EIR/EIS, FAA required obstruction lighting would result in adverse and significant

(Class I) visual impacts as lights would be considered a substantial source of new lighting in the area.

The inclusion of the obstacle collision avoidance system (OCAS) into the project as a mitigation measure for the Tule Wind Project was suggested by the BLM as a means to minimize unnecessary lighting impacts associated with standard FAA red, flashing obstruction lighting. In addition, the identification of OCAS as an appropriate lighting option further evolved after review of a publically available FAA Memorandum dated June 15, 2009, regarding the use of audio visual warning systems (AVWS) as an acceptable form of marking and lighting for wind turbine farms. The CPUC and BLM are aware of recent policy direction regarding the FAA's position on the use of AVWS on wind turbines and wind farms and that the FAA is currently conducting studies regarding the use of AVWS on wind turbine farms. However, because the FAA has not approved requests for OCAS or other AVWS to light wind turbines and wind farms (per their November 2010 memorandum to Mr. Tom Vinson of the American Wind Energy Association), installation of OCAS onto wind turbines proposed by the Tule Wind Project is not currently feasible. Therefore, Mitigation Measure VIS-4b has been revised in the Final EIR/EIS to clarify that installation of OCAS onto Tule Wind Project wind turbines shall be required following FAA approval of AVWS to light wind turbines and wind turbine farms.

2.6 CULTURAL RESOURCES

Summary of Issues Raised

Table 2-6 provides a list of recurring comments related to cultural resources and addressed by common responses.

Table 2-6 Common Cultural Resources Response Topics

Common Response/Issue	Origin of Comments
CUL1: Sufficiency of BLM Native American consultation process	A2 – Congressman Filner (Comment A2-4) A3 – Congressman Hunter (Comment A3-4) A5 – U.S. Environmental Protection Agency (Comment A5-21) C3 – Manzanita Band of the Kumeyaay Nation (Comment C3-4) Campo Band of Mission Indians (Comment C4-5) C6 – Viejas Tribal Government (Comment C6-1, C6-3) D7 – Backcountry Against Dumps (Comment D7-3) D21 – Courtney Ann Coyle (Comment D21-8) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-26, D28-43, D28-45, D28-48, D28-49, D28-54) D33 – Law Offices of Stephan Volker (Comment D33-22) F20 – Brendan Hughes (Comment F20-4) F74 – Carol Cockerham (Comment F74-2) F75 – Marissa Cuero (Comment F75-2) F76 – Judy Elliott (Comment F76-1) F77 – Nick Elliott (Comment F77-2) F78 – Toni Lee Elliott (Comment F78-1) F79 – Yolanda Elliott (Comment F79-1) F80 – Lio Estrada (Comment F80-2) F82 – Veronica Santos (Comment F82-1) F83 – Jeanie Sepin (Comment F83-2) F84 – Alexa Adkins (Comment F84-2) F87 – Johnny Eagle Spirit Elliot (Comment F87-1) F94 – Daniella Adkins (Comment F94-2) F95 – Keith Adkins (Comment F95-2) F96 – Theresa Angotti and David Thompson (Comment F96-2) F100 – Santiago de Los Santos (Comments F100-1, F100-2) F101 – Angela Elliott Santos (Comment F101-1) F102 – Ginette Gallego (Comment F102-2) F107 – Rafael Rubio (Comment F107-2)
CUL2: EIR/EIS identification and avoidance of Kumeyaay sites	A2 – Congressman Filner (Comment A2-4) A5 – Environmental Protection Agency (Comment A5-21) D28 – Boulevard Planning Group (Comments D28-43, D28-45) F53 – Michael Cuff (Comment F53-8)

Table 2-6 (Continued)

Common Response/Issue	Origin of Comments
	F74 – Carol Cockerham (Comment F74-2) F75 – Marissa Cuero (Comment F75-2) F76 – Judy Elliott (Comment F76-1) F77 – Nick Elliott (Comment F77-2) F78 – Toni Lee Elliott (Comment F78-1) F79 – Yolanda Elliott (Comment F79-1) F80 – Lio Estrada (Comment F80-2) F82 – Veronica Santos (Comment F82-1) F83 – Jeanie Sepin (Comment F83-2) F84 – Alexa Adkins (Comment F84-2) F87 – Johnny Eagle Spirit Elliot (Comment F87-1) F94 – Daniella Adkins (Comment F94-2) F95 – Keith Adkins (Comment F95-2) F96 – Theresa Angotti and David Thompson (Comment F96-2) F100 – Santiago de Los Santos (Comment F100-1) F101 – Angela Elliott Santos (Comment F101-1) F102 – Ginette Gallego (Comment F102-2)
CUL3: Adequacy of cumulative cultural resources impact analysis	A2 – Congressman Filner (Comment A2-4) B8 – County of San Diego (Comment B8–9) C4 – Campo Band of Mission Indians (Comment C4-5) C6 – Viejas Tribal Government (Comments C6-1, C6-3) D7 – Backcountry Against Dumps (Comment D7-3) D21 – Courtney Ann Coyle (Comment D21-4) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-26, D28-48, D28-49, D28-54) D33 – Law Offices of Stephan Volker (Comment D33-22) F20 – Brendan Hughes (Comment F20-4) F67 – Mark Ostrander (Comment F67-16) F98 – Cindy Buxton (Comment F98-3) F100 – Santiago de Los Santos (Comment F100-2)

CUL1: Commenters questioned whether the BLM's consultation process with local Native Americans was sufficient to identify all Traditional Cultural Properties (TCPs) that would potentially be impacted by the Proposed PROJECT.

CUL2: Commenters raised the question of whether the EIR/EIS properly identifies and avoids development on all significant and sacred cultural, historic, religious, and archaeological Kumeyaay ancestral sites within the project area, and ensures consistency with Executive Order 13007, Indian Sacred Sites.

CUL3: Commenters wondered whether cumulative impacts on cultural resources, particularly TCPs, resulting from approval and development of other alternative energy projects in the vicinity have been adequately addressed.

Common Responses

CUL1: **Sufficiency of BLM Native American consultation process.** The EIR/EIS carefully describes the range of federal, state, and local regulations that mandate consultation with Native Americans who may have knowledge of cultural resources within the project's Area of Potential Effects (APEs). Government-to-government consultation pursuant to the BLM Section 106 guidelines has been initiated and has been extended to include knowledgeable Native American individuals identified by the California Native American Heritage Commission. No TCPs were identified within the ESJ Gen-Tie Project area; however, the Section 106 consultation process for the ECO Substation and Tule Wind projects is still underway. While there is not complete agreement between the Kumeyaay Bands, some have expressed to the BLM during government-to-government consultation the general sensitivity and sacredness of the overall project area, and that the McCain and the Jacumba valleys should be viewed as cultural landscapes. One tribe has informed the BLM that they have direct ancestral ties to both McCain Valley and Jacumba. In addition to tribal governments, individual Native Americans have also come forward to the BLM at various Section 106 meetings with information about certain special areas located within the project areas. With regards to the ECO Substation Project, the ethnographic literature documents that there are geographic landforms or features in or near the Jacumba Valley that are considered spiritually significant, including sacred springs, a mountain used for ritual and ceremony, and an eagle eyrie. Archaeological sites with known cremation or funerary items are also considered very sensitive by contemporary Native Americans, and this has been expressed clearly to the BLM through the consultation process. Within the Tule Wind Project area specifically, the BLM has heard through its consultations with two tribes that the large granite boulder known as Lost Valley Rock (or its Kumeyaay name, "wekatoekush"), is still today considered an important geological feature that served as a guidepost for the Kumeyaay people traveling between the desert and the coast during prehistoric or ethnographic times. Archaeological sites with known cremation or funerary items are also considered very sensitive by contemporary Native Americans. Final EIR/EIS Section I.4.3, Native American Tribes, has been updated to describe the status of BLM's government-to-government consultation.

As defined by CEQA Guidelines Section 15151, "an evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible…The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." The Draft EIR/EIS states (in Section D.7.3.1), "In some cases, avoiding direct and indirect impacts to TCPs such as traditional landscapes, topographic elements including sacred mountains, or use areas may not be completely feasible given the geographic expanse of some of these resources. In this event, the residual impact on TCPs would be adverse; therefore, mitigation has been provided. However, the identified impact cannot be mitigated." The Draft EIR/EIS provides a "reasonably feasible" expectation of the worst-case outcome from Native American consultation, and provides the factual basis for this conclusion. The Draft EIR/EIS states that avoidance of unknown human remains will be feasibly avoided, if necessary, through project redesign.

Conclusion of Native American consultation for the ECO Substation and Tule Wind projects as required under the National Historic Preservation Act Section 106 compliance process may result in more definitive information regarding TCPs and potential measures to avoid effects to these resources. The cultural resources section of the EIR/EIS, Section D.7.1, Environmental Setting/Affected Environment, explains that TCPs may include places such as traditional landscapes, sacred mountains, or areas where Native Americans collect plants for food, medicine, and basket weaving. TCPs can include areas where ceremonial uses occur or have occurred, or parks, neighborhoods, or community gathering areas where contemporary cultural traditions are maintained.

Final EIR/EIS Impact CUL-3, Tule Wind Project discussion (in Section D.7.3.3, Direct and Indirect Effects), has also been revised to address Native American concerns regarding the presence of golden eagles (*Aquila chrysaetos)* within the Proposed PROJECT area.

This change to the EIR/EIS does not raise important new issues about significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines, and under NEPA do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

The Draft EIR/EIS identified potential risk to eagles in the northwestern portion of the Proposed PROJECT. It was determined that risk to at least one pair of eagles would result from the Tule Wind Project. This potential contribution to the decline of a

population of golden eagles in a region with a documented decline was considered unavoidable and adverse under NEPA and a significant, unmitigable impact under CEQA (Class I). Based on the analysis and rationale provided in the EIR/EIS, the northwestern portion of the Tule Wind Project was determined to pose a higher risk of turbine collision to golden eagles. Removal of proposed turbines in the northwestern portion of the Tule Wind Project under Tule Wind Alternative 5 in the EIR/EIS would reduce the risk of turbine collision to golden eagles to less-than-significant levels. This would also address some of the Native Americans' heritage concern for impacts to golden eagles.

The BLM Section 106 Native American consultation process has not yet been concluded for the ECO Substation or Tule Wind projects such that the nature, extent, and potential significance of TCPs in the McCain Valley area are still unknown. EIR/EIS Section D.7.3.3, Impact CUL-3, states that while no TCPs have been identified in the McCain Valley based on information provided in the applicant's environmental document for the ECO Substation or Tule Wind projects, potential National Register of Historic Places (NRHP) eligibility of unknown TCPs must be assumed, and that in some cases, avoiding direct and indirect impacts to TCPs (such as traditional landscapes, topographic elements including sacred mountains, or use areas) may not be completely feasible given the geographic expanse of some of these resources. The Final EIR/EIS recognizes that contemporary Native Americans consider the McCain Valley and Jacumba to be interconnected archaeological districts based on the large number of recorded archaeological sites in this region. Therefore, the EIR/EIS determines that the residual impact on TCPs would be adverse and mitigation has been provided to reduce impacts (see EIR/EIS Section D.7.3.3, Impact CUL-3, ECO Substation Project and Tule Wind Project, for a full list of mitigation measures). However, because the nature, extent, and potential significance of TCPs in the McCain Valley area has not yet been identified or completely documented, and because many representatives of contemporary Native American tribes consider past cumulative development in the area to have already substantially impacted ancestral and sacred grounds, the impact was conservatively determined to be significant and unavoidable (Class I), even after mitigation.

Tribes and individuals are being provided opportunities to assist in identifying and evaluating TCPs that may be affected by the Proposed PROJECT, and identifying appropriate mitigation measures prior to approval of the Record of Decision. Appendix 10 of the Final EIR/EIS includes copies of the Tule Wind and ECO Substation Projects Section 106 Draft Memorandum of Agreements (MOAs).

CUL2: EIR/EIS identification and avoidance of Kumeyaay sites. The entire ECO Substation, Tule Wind, and ESJ Gen-Tie Project APEs were systematically surveyed for the presence of any archaeological resources. As stated in common response CUL1, the scope, nature, extent, and potential significance of any TCPs within the ECO Substation and Tule Wind project areas are not presently known. Implementation of Mitigation Measure CUL-1B, designed to avoid significant cultural resources, would ensure that potential burial cremations at CA-SDI-6776/7051/7059/19035 and CA-SDI-176 would be avoided. Mitigation Measure CUL-1D, requiring the retention of Native Americans during construction monitoring, would also minimize the potential for adverse effects to sacred cultural, historic, religious, and archaeological Kumeyaay ancestral sites within the project area. The MOA between the BLM and affected Native American tribes will provide the specific mechanisms for implementing mitigation measures in this EIR/EIS, and will be included as Appendix 10 to the Final EIR/EIS. The MOAs will address the objectives of Executive Order 13007, Indian Sacred Sites.

EIR/EIS Mitigation Measure CUL-1A requires that impacts to all significant cultural resources be avoided or mitigated. Several project description refinements have occurred in the ECO Substation and Tule Wind Project transmission line and access road alignments to avoid these resources. Please refer to responses E1-1 and E3-1 that describe the modified project revisions for the ECO Substation and Tule Wind Projects. These revisions to the EIR/EIS are presented in ~~strikeout~~ underline format in the Final EIR/EIS. These changes and additions to the EIR/EIS do not raise important new issues about significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines, and under NEPA do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

CUL3: Adequacy of cumulative cultural resources impact analysis. The Draft EIR/EIS considers the combined incremental effects of the Proposed PROJECT with other related projects in the vicinity, including the three related Campo, Manzanita, and Jordan wind energy projects. Compliance of these projects with federal Section 106 requirements and San Diego County General Plan policies will result in mitigation measures such as those identified in the Draft EIR/EIS intended to reduce potential impacts on prehistoric cultural resources, primarily through avoidance. Identification of TCPs within these project areas is critical to the successful implementation of impact avoidance through redesign. All related projects are subject to relevant federal, state, and local regulations that mandate consultation with Native Americans

and avoidance of sacred lands, including Executive Order 13007, Indian Sacred Sites; BLM Eastern San Diego County Resource Management Plan and Record of Decision; and County of San Diego General Plan policies. The Final EIR/EIS recognizes that contemporary Native Americans consider the McCain Valley and Jacumba interconnected archaeological districts based on the large number of recorded archaeological sites in this region. Cumulative development is considered to have resulted and has the potential to exacerbate negative impacts on Kumeyaay ancestral and sacred grounds. Because the nature, extent, and potential significance of TCPs in the McCain Valley area has not yet been precisely identified, and because many representatives of contemporary Native American tribes consider past cumulative development in the area to have already substantially impacted ancestral and sacred grounds, Proposed PROJECT Impact CUL-3 is determined to be adverse even after mitigation, and under CEQA significant and unmitigable (Class I).

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2.7 NOISE

Summary of Issues Raised

Table 2-7 provides a list of recurring comments related to noise and addressed by common responses.

Table 2-7 Common Noise Response Topics

Common Response/Issue		Origin of Comment
NOI1:	Inaccurate calculation of existing ambient sound levels	D24 – Pinney, Caldwell, and Pace (Comment D24-3) D25 – Pinney, Caldwell, and Pace (Comment D25-3) D27 – Backcountry Against Dumps (Comment D27-3) F11 – Ginger Bonamo (Comment F11-3) F42 – John and Iris Mauris (Comments F42-13, F42-14) F43 – Robert and Kathryn McCallister (Comments F43-12, F43-14) F65 – Jeffrey and Paula Byrd (Comments F65-11, F65-12) F69 – Mary Lu Brandwein (Comment F69-5) F71 – Mrs. Ken Oppenheimer (Comments F71-11, F71-12) F72 – Michele Strand (Comments F72-12, F72-13) F81 – Michael and Debbie Moran (Comments F81-11, F81-12) F88 – Jon Isaacs (Comment F88-6) F91 – Crosby Milne (Comments F91-11, F91-12) F92 – Christopher Noland (Comment F92-2) H1 – Steve Washer (Comments H1-8, H1-9)
NOI2:	Need for analysis of audible and inaudible sound, including health effects and appropriate measurement metrics for both. Appropriateness of A-weighting as scale of sound measurement	D31 – E-Coustic Solutions on behalf of Backcountry Against Dumps (Comments D31-5, D31-18) F30 – Barbara Ashbee (Comment F30-1) F42 – John and Iris Mauris (Comments F42-8, F42-14) F43 – Robert and Kathryn McCallister (Comments F43-7, F43-13) F44 – Paul Thomson (Comment F44-6) F63 – Carmen Krogh (Comments F63-19, F63-23, F63-50, F63-55) F65 – Jeffrey and Paula Byrd (Comments F65-6,F65-12) F69 – Mary Lu Brandwein (Comments F69-2, F69-3) F71 – Mrs. Ken Oppenheimer (Comments F71-6, F71-12) F72 – Michele Strand (Comments F72-6, F72-13) F81 – Michael and Debbie Moran (Comments F81-6, F81-12) F88 – Jon Isaacs (Comment F88-6) F91 – Crosby Milne (Comments F91-6, F91-12) H1 – Steve Washer (Comments H1-3, H1-9)
NOI3:	Consideration of various sources of noise annoyance	D31 – E-Coustic Solutions on behalf of Backcountry Against Dumps (Comments D31-5, D31-16, D31-18) F30 – Barbara Ashbee (Comment F30-1) F44 – Paul Thomson (Comments F44-5, F44-6) F63 – Carmen Krogh (Comments F63-17, F63-19, F63-22, F63-26, F63-27, F63-28, F63-50)

Table 2-7 (Continued)

Common Response/Issue		Origin of Comment
		F69 – Mary Lu Brandwein (Comment F69-3) F88 – Jon Isaacs (Comment F88-6)
NOI4:	Inadequate analysis due to lack of low frequency noise calculations	A3 – Congressman Duncan Hunter (Comment A3-6) B8 – County of San Diego (Comment B8-2) D28 – Boulevard Planning Group (Comments D28-14, D28-19, D28-108) D31 – E-Coustic Solutions (Comment D31-18) F30 – Barbara Ashbee (Comment F30-1) F44 – Paul Thomson (Comment F44-6) F69 – Mary Lu Brandwein (Comments F69-3, F69-6) F70 – Marie and Scott Morgan (Comment F70-4) F88 – Jon Isaacs (Comment F88-6) F97 – Mary Lu Brandwein (Comment F97-5)
NOI5:	Inadequate analysis of health effects related to low frequency noise and infrasound	A3 – Congressman Hunter (Comments A3-5, A3-6, A3-9) D18 – Backcountry Against Dumps (Comment D18-2) D28 – Boulevard Planning Group (Comments D28-14, D28-19, D28-108) D31 – E-Coustic Solutions on behalf of Backcountry Against Dumps (Comment D31-5) E1 – Iberdrola Renewables (Comment E1-30a) F30 – Barbara Ashbee (Comment F30-1) F41 – Earl Goodnight (Comment F41-2) F43 – Robert and Kathryn McCallister (Comment F43-7) F44 – Paul Thomson (Comments F44-5, F44-6) F63 – Carmen Krogh (Comments F63-1, F63-4, F63-5, F63-19, F63-21, F63-23, F63-24) F64 – Carmen Krogh (Comment F64-3) F65 – Jeffrey and Paula Byrd (Comment F65-6) F69 – Mary Lu Brandwein (Comments F69-9, F69-22, F69-25) F70 – Marie and Scott Morgan (Comments F70-4, F70-6) F71 – Mrs. Ken Oppenheimer (Comment F71-6) F72 – Michele Strand (Comment F72-6) F81 – Michael and Debbie Moran (Comment F81-6) F90 – Jeffrey and Laura McKernan (Comment F90-2) F91 – Crosby Milne (Comment F91-6) F97 – Mary Lu Brandwein (Comment F97-5) F108 – Steven and Laurie Squillaci (Comment F108-3) H1 – Steve Washer (Comment H1-3)
NOI6:	Significance of low frequency noise generated by wind turbines compared to other noise sources	F30 – Barbara Ashbee (Comment F30-1) F44 – Paul Thomson (Comment F44-5) F63 – Carmen Krogh (Comments F63-4, F62-17, F63-19, F63-22, F63-28, F63-50) F69 – Mary Lu Brandwein (Comments F69-2, F69-3) F88 – Jon Isaacs (Comment F88-6)

Table 2-7 (Continued)

Common Response/Issue		Origin of Comment
NOI7:	Inappropriate procedures and guidelines used to measure outdoor environmental sound generated from turbines	F43 – Robert and Kathryn McCallister (Comment F43-12) F63 – Carmen Krogh (Comments F63-14, F63-57) F65 – Jeffrey and Paula Byrd (Comment F65-11) F69 – Mary Lu Brandwein (Comment F69-5) F71 – Mrs. Ken Oppenheimer (Comment F71-11) F72 – Michele Strand (Comment F72-12) F81 – Michael and Debbie Moran (Comment F81-11) F88 – Jon Isaacs (Comment F88-6) F91 – Crosby Milne (Comment F91-11) H1 – Steve Washer (Comment H1-8)
NOI8:	Consideration of uncharacteristic operational conditions in measuring noise generated by turbines	D31 – E-Coustic Solutions on behalf of Backcountry Against Dumps (Comments D31-10, D31-11) F43 – Robert McCallister (Comment F43-12) F69 – Mary Lu Brandwein (Comment F69-5) F71 – Mrs. Ken Oppenheimer (Comment F71-11) F81 – Michael and Debbie Moran (Comment F81-11) F91 – Crosby Milne (Comment F91-11) H1 – Steve Washer (Comment H1-8)
NOI9:	Inappropriate standards used for addressing the attenuation of outdoor environmental sound	F43 – Robert and Kathryn McCallister (Comment F43-12) F65 – Jeffrey and Paula Byrd (Comment F65-11) F69 – Mary Lu Brandwein (Comment F69-5) F71 – Mrs. Ken Oppenheimer (Comment F71-11) F72 – Michele Strand (Comment F72-12) F81 – Michael and Debbie Moran (Comment F81-11) F88 – Jon Isaacs (Comment F88-6) F91 – Crosby Milne (Comment F91-11) H1 – Steve Washer (Comment H1-8)
NOI10:	Inadequacy of noise impact studies; did not consider “dose response” relationship	A3 – Congressman Duncan Hunter (Comment A3-6) D18 – Backcountry Against Dumps (Comment D18-2) D28 – Boulevard Planning Group (Comments D28-14, D28-19, D28-108) D31 – E-Coustic Solutions (Comment D31-5) F30 – Barbara Ashbee (Comment F30-1) F44 – Paul Thomson (Comments F44-5, F44-6) F63 – Carmen Krogh (Comments F63-4, F63-5, F63-14, F63-19, F63-21, F63-22, F63-28) F64 – Carmen Krogh (Comment F64-3) F69 – Mary Lu Brandwein (Comments F69-2, F69-3, F69-6) F70 – Marie and Scott Morgan (Comment F70-4) F88 – Jon Isaacs (Comment F88-6) F97 – Mary Lu Brandwein (Comment F97-5)

Table 2-7 (Continued)

Common Response/Issue	Origin of Comment
NOI11: Inadequacy of analysis in addressing compounded sound effects of in-sync turbines, amplitude modulation, or periodic beats from audible and inaudible sound	D31 – E-Coustic Solutions on behalf of Backcountry Against Dumps (Comment D31-5) F30 – Barbara Ashbee (Comment F30-1) F63 – Carmen Krogh (Comments F63-19, F63-50, F63-53) F69 – Mary Lu Brandwein (Comments F69-2, F69-3, F69-15, F69-16) F108 – Steven and Laurie Squillaci (Comment F108-3)
NOI12: Lack of support for a 1,000-foot setback	A3 – Congressman Duncan Hunter (Comments A3-6, A3-9) D18 – Backcountry Against Dumps (Comment D18-2) D28 – Boulevard Planning Group (Comments D28-14, D28-19, D28-62, D28-64, D28-108) F9 – Mary Lu Brandwein (Comment F9-1) F30 – Barbara Ashbee (Comment F30-1) F41 – Earl Goodnight (Comment F41-2) F43 – Robert and Kathryn McCallister (Comments F43-3, F43-7, F43-8, F43-12) F44 – Paul Thomson (Comment F44-6) F63 – Carmen Krogh (Comments F63-1, F63-5, F63-15, F63-20, F63-23, F63-57) F64 – Carmen Krogh (Comment F64-3) F65 – Jeffrey and Paula Byrd (Comments F65-3, F65-6, F65-7, F65-11) F69 – Mary Lu Brandwein (Comments F69-10, F69-17, F69-26, F69-28, F69-30) F70 – Marie and Scott Morgan (Comment F70-4) F71 – Mrs. Ken Oppenheimer (Comments F71-3, F71-6, F71-7, F71-11) F72 – Michele Strand (Comments F72-3, F72-6, F72-8, F72-12) F81 – Michael and Debbie Moran (Comments F81-3, F81-6, F81-7, F81-11) F90 – Jeffrey and Laura McKernan (Comment F90-2) F91 – Crosby Milne (Comments F91-3, F91-6, F91-7, F91-11) F97 – Mary Lu Brandwein (Comment F97-14) F108 – Steven and Laurie Squillaci (Comment F108-1) F109 – Patricia and Elliott Stuart (Comment F109-1) H1 – Steve Washer (Comments H1-1, H1-3, H1-4, H1-8)
NOI13: Turbines not designed with appropriate noise control considerations	F43 – Robert and Kathryn McCallister (Comment F43-12) F63 – Carmen Krogh (Comment F63-57) F65 – Jeffrey and Paula Byrd (Comment F65-11) F71 – Mrs. Ken Oppenheimer (Comment F71-11) F72 – Michele Strand (Comment F72-12) F81 – Michael and Debbie Moran (Comment F81-11) F91 – Crosby Milne (Comment F91-11) H1 – Steve Washer (Comment H1-8)

Table 2-7 (Continued)

Common Response/Issue	Origin of Comment
NOI14: Contingency planning for future acceptable noise and sound thresholds	B8 – County of San Diego (Comment B8-2) D24 – Pinney, Caldwell, and Pace (Comment D24-3) D25 – Pinney, Caldwell, and Pace (Comment D25-3) D27 – Backcountry Against Dumps (Comment D27-3) F11 – Ginger Bonamo (Comment F11-3) F69 – Mary Lu Brandwein (Comments F69-13, F69-21)

NOI1: Commenters suggest that the EIR/EIS is inaccurate because it did not accurately calculate existing ambient sound levels for the project, taking into consideration short-term events or background wind noises in calculating ambient conditions.

NOI2: Commenters suggest that the EIR/EIS is inadequate because characteristics of audible and inaudible sound are not fully addressed, including the appropriate measurements of both, and the health effects of prolonged audible and inaudible sound. Commenters suggest that A-weighting is not the appropriate sound measurement for low-frequency noise or infrasound, but rather C-weighting and Z-weighting are more appropriate. Commenters question what the effects would be if the scale was changed.

NOI3: Commenters suggest that different sources of noise (air, road, and railway) can cause different annoyance effects, even if the Ldn sound levels are the same. Commenters suggest that noise from wind turbines is more annoying than noise generated from other sources at comparable Ldn sound levels (e.g., aircraft or road noise) due to the unique sound characteristics of wind turbine noise. As a result, greater consideration should be given to noise from wind turbines than other sources of noise and additional mitigation should be provided to address this heightened annoyance.

NOI4: Commenters suggest that the document is inadequate because it does not attempt to calculate the amount of low-frequency noise and infrasound that would be generated.

NOI5: Commenters suggest that the document is inadequate because it does not address the effects of low-frequency noise and infrasound on public health, does not consider peer-reviewed and epidemiological studies to address potential health effects related to low-frequency noise and infrasound, and does not include any mitigation to address these impacts.

NOI6: Commenters suggest that wind turbines generate significant low-frequency noise, greater than other noise sources. Commenters suggest that health effects related to low-frequency noise are more severe than health effects resulting from community

noise in general; therefore, noise sources generating low-frequency noise should be subject to stricter guidelines.

NOI7: Commenters suggest that the appropriate procedures and guidelines were not utilized for measuring outdoor environmental sound generated by wind turbines.

NOI8: Commenters suggest that calculated sound levels did not take into consideration atypical operational conditions such as temperature inversion, uncharacteristic weather patterns, high wind shear above the boundary layer, and periods of atmospheric turbulence (related to turbines mounted on high locations with rough terrain).

NOI9: Commenters suggest that the appropriate standards were not used for addressing the attenuation of outdoor environmental sound generated by wind turbines.

NOI10: Commenters suggest that inadequate studies were performed to support the evaluation of noise impacts. Commenters suggest that noise studies for wind turbines do not consider the unique human "dose response relationship" to sound generated from wind turbines.

NOI11: Commenters suggest that the analysis is inadequate because it does not address sound effects that may result if two or more turbines are "in sync" vs "out of sync" or an explanation of the existence and potential effects of amplitude modulation (blade thumping) from wind turbines during periods of high turbulence or wind shear levels. Commenters suggest that the analysis should address the potential health effects of periodic beats resulting from audible and inaudible sound.

NOI12: Commenters suggest that the EIR/EIS lacks support for a 1,000-foot setback from wind turbines to residences and other sensitive receptors.

NOI13: Commenters suggest that the EIR/EIS is inadequate because it does not require that proposed wind turbine facilities be designed with appropriate noise control considerations. Commenters suggest that noise assessments for the proposed wind turbine facilities should model a worst-case scenario and maximize setbacks.

NOI14: Commenters question the procedure for modifying the wind turbine design, setbacks, etc. if future studies result in new adopted noise and low-frequency sound thresholds or standards. Commenters suggest that this sort of contingency planning be incorporated into the EIR/EIS.

COMMON RESPONSES

NOI1: Existing noise levels were measured using precision logging sound-level meters and microphones. Measurement durations were 24 hours long at each measurement location. Existing sound levels were analyzed in terms of 1-hour intervals, consistent with many state and federal agency standards (e.g., Federal Highway Administration, Federal Transit Administration, Federal Railroad Administration), as well as common practice for environmental noise measurements.

The intent of the sound measurement was to characterize the existing ambient sound environment. Therefore, standardized measurement methods were chosen that have a scope and purpose that are compatible with this intent. These applicable standards for measurement of the existing ambient sound measurement are ANSI S1.13, ANSI S12.9/Part 2, and ASTM E1 014. The measurement of existing ambient sound levels for the Tule Wind Project followed applicable portions of the above measurement standards. The measurement procedures above consider short-term sound events an inherent feature of the sound measurement, and do not exclude these sounds from the measurement.

There are other measurement methods that address the exclusion of short-term and transient sound events in the environment. These standards include ANSI S12.9/Part 3, ANSI S12.18, and ASTM E1780. These standards are not intended to characterize the existing ambient sound levels. They are intended to measure the sound from a specific source. It is therefore inappropriate to use these methods to document the existing (pre-construction) acoustic environment. The sound sources of interest – the wind turbines – do not yet exist. The standards ANSI S12.9/Part 3 and ANSI S12.18 both have procedures to remove the influence of extraneous background sounds. When measuring a specific sound source, it is impossible to separate the sound of the specific source of interest from the rest of the sounds in the environment. Therefore, it is necessary to perform two measurements: one of the total sound (the source of interest combined with the remaining sounds in the background environment), and one of just the background sound (the sounds in the environment without the source of interest). Once this is accomplished, it is possible to mathematically derive the sound level of the specific sound source on its own, without the background environment. This can be an intricate process because the background sound must be nearly identical in both measurements. If short-term or transient noise events occur in either the total sound measurement or the background sound measurement, the calculation will yield incorrect results. Therefore, short-term or transient events are excluded when measuring a specific sound source.

Measuring the existing ambient sound environment for the Tule Wind Project did not follow procedures of ANSI S12.18 described above. Despite the existence of a clause therein that allows for measurement of ambient sound measurements, the introduction to ANSI S12.18 states the procedures are primarily focused on measurements of specific sound sources, and the scope clause specifically precludes use of ANSI S12.18 for environmental assessment or planning for compatible land uses.

Short-term noise events that occurred during the measurement period are inherently integral to the existing ambient sound environment for the Tule Wind Project; therefore, these sounds were included in the measurement results of the existing ambient sound environment, following applicable portions of standards ANSI S1.13, ANSI S12.9/Part 2, and ASTM E1014. In other words, the analysis for the Tule Wind Project included short-term events and background wind noises in its measurements of existing ambient sound levels.

NOI2: The analysis results presented in the *Tule Wind Project – Draft Noise Analysis Report* represent calculated project-related sound levels (the results of the Noise Analysis Report are summarized in Section D.8, Noise, of the *East County Substation/Tule Wind/Energia Sierra Juarez Projects EIR/EIS,* and the report is included as Appendix P to the Applicant's Environmental Document, available online here:

http://www.dudek.com/ECOSUB/TuleAED/Appx_P_Noise.pdf).

It should be noted that the Noise Analysis Report was updated in February 2011 and the updated version is available on the project's website:

http://www.cpuc.ca.gov/environment/info/dudek/ecosub/Tule_TS.htm

Project-related sound levels were calculated using Cadna-A, an acoustical analysis software package designed for evaluating environmental noise from stationary and mobile sources. Cadna-A is a three-dimensional noise model based on International Standards Organization (ISO) 9613, "Attenuation of Sound During Propagation Outdoors," adopted by the ISO in 1996. This standard provides a widely accepted engineering method for the calculation of outdoor environmental noise levels from sources of known sound emission.

Several sound sources associated with project operations were modeled using Cadna-A, including the project collector substation, wind turbine generators, and a Sonic Detection and Ranging (SODAR) unit.

The sound analysis evaluated noise impacts based on the maximum project build-out in terms of number of turbines. The maximum build-out for the project allows for up to 128 1.5-megawatt (MW) turbines. In the assessment of wind turbine-generated sound, 128 Gamesa G87 2.0 MW turbines were modeled. If 2.0 MW turbines, such as the G87, were to be utilized, approximately 100 locations would be built versus the 128 locations modeled. Turbine locations and turbine types have not been finalized; therefore, all potential locations were analyzed. Actual noise impacts utilizing a 2.0 MW turbine would be less than modeled due to fewer turbines.

The sound analysis estimated project-related sound levels by incorporating a number of modeling techniques whose net effect conservatively overestimated noise propagation in the project area. These techniques include assuming that the ground is 100% acoustically reflective, that the noise levels associated with the hot weather package (which includes additional noise from cooling equipment in the nacelle) were occurring all of the time, and other techniques that conservatively over estimate project-related noise levels. The net effect is the over estimation of project-related noise levels. This noise analysis is reasonable, appropriate, and is more conservative than required by the standards of practice in the field of environmental acoustics. Therefore, the analysis attempts to illustrate the worst-case scenario in regards to potential noise impacts.

The A-weighting scale is appropriate because it is a close approximation of the human response to different frequencies of sound and is in broad use across many disciplines that address noise. The A-weighting scale attenuates low-frequency noises in a manner that simulates how human ears attenuate low-frequency noise at low levels (approximately 40 decibels (dB)). The A-weighting scale is the most common weighting scale for environmental acoustics analysis and assessing compliance with applicable noise limits. State and federal agencies that regulate environmental noise throughout the United States rely on the A-weighted decibel, or dB(A), as the appropriate metric for assessing human response to noise. Applicable noise rules in California also rely on the A-weighted decibel. Section 6951 of the San Diego County Zoning Ordinance requires that sound level limits of Title 3, Division 6, Chapter 4 of the San Diego County Code (Noise Abatement and Control), shall apply to large wind turbine systems. San Diego County Code of Regulatory Ordinances Section 36.403, Sound Level Measurement, specifies that sound level measurements "… shall be measured with a sound level meter using A-weighting and a "slow" response time, as these terms are used in ANSI S1.1-1994 or its latest revision."

Additionally, the San Diego County General Plan Part VIII, Noise Element, states: "The most appropriate basic unit of measure for community noise is the A-weighted sound level, abbreviated dBA. This unit gives a lower weight to low and high frequency sounds in a manner similar to the relative lower efficiency of the ear at low or high frequencies."

Therefore, in San Diego County, the recommended metric for determining noise impacts from wind turbine generated sound is the A-weighted decibel. This is consistent with the County Noise Element, local sound-level limits and, post-construction sound-level measurement procedures.

The sound analysis performed for the Tule Wind Project focuses on the potential effect of airborne sound and vibration on humans. Hence, the weighting scale used in the analysis, the A-weighting scale, is representative of human perception of sound. Existing requirements in San Diego County also rely on A-weighting for sound measurements and regulations. While there are weighting scales other than the A-weighting scale, which simulates human response to frequencies of sound, use of other weighting scales produces results that do not reflect how human ears respond to different frequencies of sound. Therefore, they are not used in the context of an environmental acoustics analysis performed to assess compliance with applicable noise limits.

The current sound study, *Tule Wind Project – Draft Noise Analysis Report*, dated February 2011, provides an analysis of project-related sound. The analysis includes an assessment of project-related sound in comparison to existing noise requirements on an A-weighted basis. Also included in the current sound analysis for informational purposes is the operational project-related sound level in dBC, or the C-weighting scale. Please refer to Tables 9 and 12 of the February 2011 noise study for additional details.

The A-weighting scale attenuates low-frequency noises in a manner that simulates how human ears attenuate low-frequency noise. The C-weighting scale does not attenuate low frequencies as much as the A-weighting scale. The intent of the C-weighting scale is to simulate human perception at higher sound levels, in excess of 70 dB. Use of C-weighting produce different sound analysis results than those already reported in units of A-weighted decibels.

The appropriate metric to measure and assess audible wind turbine sound is dictated by the context of the measurements. In this instance, the applicable sound limits are the context for this discussion. Section 6951 of the San Diego County Zoning Ordinance requires that sound-level limits of Title 3, Division 6, Chapter 4 of the San Diego County Code (Noise Abatement and Control), shall apply to large wind turbine systems. San Diego County Code of Regulatory Ordinances, Section 36.403, Sound

Level Measurement, specifies that sound-level measurements "…shall be measured with a sound level meter using A-weighting and a "slow" response time, as these terms are used in ANSI S1.1-1994 or its latest revision."

Measuring audible wind turbine generated sound with the A-weighted decibel is consistent with the County Noise Element, local sound-level limits, and post-construction sound-level measurement procedures. The A-weighting scale simulates the frequency response of the human ear to both high, mid, and low-frequency sounds. Although the County has Draft Noise Guidelines that includes dBC (low frequency) standards, the analysis conducted in the EIR/EIS is based on thresholds established by respective agencies as of the date of publishing the EIR/EIS (i.e., San Diego County's approved noise ordinance and standards). Please refer to common response NOI14 regarding use of future studies.

The Z-weighting scale is a linear scale that does not weight any of the frequencies: it is flat, linear, and unweighted. Low-frequency sounds would appear relatively higher in Z weighting than in A-weighting. In the context of an environmental noise assessment performed to assess the potential effect of airborne sound on humans and determine compliance with A-weighted noise limits, there is no merit to expressing project-related noise using Z weighting. The Z-weighting scale is not representative of the manner in which humans perceive low-frequency sound; therefore, it is inappropriate to use this scale to assess the potential effect of airborne sound on humans.

Recently, concerns have been raised about possible health effects from inaudible sound levels. As described in Iberdrola Renewables' response to CPUC's Data Request No. 14, one theory comes from Dr. Nina Pierpont who claims that health effects, including dizziness, headaches, visual blurring, and tachycardia, or "Wind Turbine Syndrome," can occur as a result of exposure to wind turbine sound (Iberdrola Renewables 2011). Dr. Pierpont claims that "Wind Turbine Syndrome," a term she coined, results from a disturbance to the vestibular system by exposure to low levels of infrasound and low-frequency sound emitted by wind turbines.

The topics of "Wind Turbine Syndrome," infrasound, and low-frequency sound below the threshold of hearing, have been addressed by Dr. Geoff Leventhall in his testimony in the Glacial Hills wind farm project in Wisconsin (Iberdrola Renewables 2011). Dr. Leventhall, a former professor who founded an acoustics research program in England that specialized in low-frequency and infrasonic research, is internationally recognized as having expertise in the topics of low frequency and infrasound. In his testimony, Dr. Leventhall stated (Iberdrola Renewables 2011):

> Attempts to claim that illnesses result from inaudible wind turbine noise do not stand up to simple analyses of the very low forces and pressures produced by the sound from wind turbines. Additionally, the body is full of sound and vibration at infrasonic and low frequencies, originating in natural body processes. As an example, the beating heart is an obvious source of infrasound within the body. Other sources of background low frequency noise and vibration are blood flows, muscle vibrations, breathing, fluids in the gut and so on. The result is that any effect from wind turbine noise, or any other low level of noise, which might be produced within the body is 'lost' in the existing background noise and vibration.

Dr. Leventhall goes on to state that "the wide range of symptoms," which Dr. Pierpont associates with "Wind Turbine Syndrome" are "well known to others as the stress effects of audible noise, to which a small number of persons are susceptible" (Iberdrola Renewables 2011).

The work of Dr. Pierpont relied heavily on the research of Dr. Neil Todd from the Faculty of Life Science at University of Manchester, who recently reprimanded Pierpont for her misinterpretation and use of his research. Dr. Pierpont's "Wind Turbine Syndrome" theory has incorrectly sought to insert airborne noise issues into a paper that is entirely about vibration through direct contact with the skull. Dr. Todd states the following concerning Pierpont's interpretation of his research (Iberdrola Renewables 2011):

> Our research is being cited to support the case that 'wind turbine syndrome' is related to a disturbance of vestibular apparatus produced by low-frequency components of the acoustic radiations from wind turbines. Our work does not provide the direct evidence suggested. We described a sensitivity of the vestibular system to low-frequency vibration of the head (through direct physical contact), at about 100 Hz [hertz], and not air-conducted sound.

Dr. Leventhall also quoted Dr. Todd, who states that (Iberdrola Renewables 2011):

> At present I do not believe that there is any direct evidence to show that any of the above acoustico-physiological mechanisms (associated with wind turbine syndrome) are activated by the radiations from wind turbines. Even if the vestibular system were activated in a controlled acoustic environment, it is not necessarily the case that it would produce pathological effects. Until such evidence is available I have an open mind on "wind turbine syndrome."

Dr. Leventhall goes on to state (Iberdrola Renewables 2011):

> Throughout Pierpont's work there is no clear indication of the excitation levels which she believes might cause a problem. While she must be aware of safe and unsafe doses of medication, she continues to close her mind to the concept of safe doses of sound, although "safe sound" is our everyday experience. Thus, Pierpont's hypothesis [related to "Wind Turbine Syndrome"] fails.

In his testimony, Dr. Leventhall summarizes additional technical portions of Pierpont's theory that infrasound causes health effects by stating (Iberdrola Renewables 2011):

> Dr. Pierpont's second hypothesis is equally unfounded. She says that infrasound at 4–8 Hz enters the lungs and vibrates the diaphragm and its attached liver, so passing confusing messages on to the visceral graviceptors. She gives no evidence to support this, but instead uses references to whole body vibration, applied to the feet or seat, which is a completely different excitation to that from sound. A simple order of magnitude calculation, using basic physics of the level which will be known to a 16-year-old school pupil, shows that the movement of the diaphragm under the forces which might result from wind turbine noise is less than 10 micron. That is less than one hundredth of a millimeter or about one tenth of the average thickness of human hair. During normal breathing, the diaphragm moves several centimeters.[…] Another part of Pierpont's second hypothesis states that infrasound from wind turbines, at a frequency of 1–2 Hz, vibrates the chest, so adding to the confusing signals which upset the balance system. However, there is already a strong source of infrasound inside the body, beating at 1–2 Hz, giving far greater magnitudes than might be produced by infrasound from wind turbines at these frequencies: the human heart. The beating heart vibrates the surface of the body at a high enough level to be picked up by a stethoscope, or even the ear. The sound produced by wind turbines does not.

Dr. Leventhall also commented on an issue raised by Mr. Richard James of E-Coustic Solutions (Iberdrola Renewables 2011):

> Mr. James uses Dr. Neil Todd as an example to 'demonstrate that there is sufficient evidence to present a causal link between ILFN (infrasound and low frequency noise) and adverse health effects.' What Dr. Todd actually showed was that, for a vibration input through physical contact to the mastoid area at the back of the head, certain reflexes, indicative of a vestibular response, continue to about 15 dB lower than the level at which the hearing mechanism of the inner ear ceases

> to respond to vibration in the skull. It takes only a little thinking to realize that all of the people who use bone conduction hearing aids are receiving vibration inputs to their vestibular system at levels well above the system's perception threshold. This does not affect them.

The testimony of Dr. Leventhall and Dr. Todd state that there are no scientifically valid peer-reviewed studies showing any adverse health effects from infrasonic or low-frequency noise emitted from turbines, and that there is no valid mechanism by which the infrasound produced by turbines could affect the human body any differently than other infrasound produced within the body. Therefore, no adverse health effects are anticipated from any infrasound produced by turbines associated with the Tule Wind Project.

NOI3: Wind turbine sound is created by mechanical components and through aerodynamic generation. The dominant source of sound for modern turbines is the interaction of the rotating blades with the air, called "aerodynamic sound." Aerodynamic sound produced by wind turbines is broadband and contains low and inaudible amounts of energy in the infrasonic range, low amounts of low-frequency energy that may or may not be audible, and relatively higher levels of noise in the audible range of middle and high frequencies.

In comparison to other exterior sound sources an hourly Leq of 45 dBA is relatively low. The San Diego County threshold of significance allows for a sound level exposure of up to 60 dBA CNEL for transportation related sources. In comparison to the Tule Wind Project, vehicular traffic can be 3 to 8 dBA louder than wind turbine generated noise. Both vehicular traffic and aircraft over-flight commonly approach or exceed 50 dBA Leq. Steady, low-volume traffic pass-by events exhibit a rhythmic rise and fall in volume. Ocean waves crashing on a beach also exhibit a rhythmic rise and fall in volume. In this manner, noise from these events exhibits amplitude modulation, which by virtue of its nature is not intrinsically annoying or harmful to human health. Both traffic noise and ocean waves exhibit a mix of broadband, low-frequency, and infrasonic noise emissions, which by virtue of its nature, is also not intrinsically annoying or harmful to human health.

Wind turbines emit broadband noise. As the blades move closer to a stationary listener, the noise they emit gets louder, and when the blade moves farther away from a stationary listener, the noise they emit gets softer. This rhythmic increase and decrease in noise emissions is called "amplitude modulation." The frequency content of amplitude modulated wind turbine noise typically occurs between 500 and 1,000 Hz. Certain persons believe that the amplitude-modulated sound made by wind

turbines makes their noise emissions more annoying than other environmental noises like highway traffic noise. However, as mentioned previously, noise that exhibits amplitude modulation is not considered annoying per se. In fact, many people consider the rhythmic noise made by ocean waves to be desirable. Although noise from ocean waves is largely broadband, it also contains low-frequency noise and is a natural source of infrasound.

In one respect, differential spacing between wind turbines has the same effect as differential spacing between any other sound sources in that at certain distances, the combination of lines of turbines will behave like a line-source. This effect is a matter of geometry, and these geometric attributes were included in the sound analysis for the Tule Wind Project. In another respect, differential spacing between wind turbines may affect the amount of turbulence that downwind turbines may experience. Current state-of-the-art acoustical analysis tools do not incorporate meteorological routines that would allow the assessment of such inter-turbine turbulence. To ensure that the noise analysis does not understate the noise from the project due to the inability to account for such specific atmospheric effects, other conservative assumptions were used in the noise analysis, including use of 100% acoustically reflective ground, modeling of the hot weather package (which includes additional noise from cooling equipment in the nacelle), continuously downwind conditions in all directions, and the addition of 2 dB to the manufacturer-stated sound emissions.

It is difficult to correlate inaudible sounds (in any frequency band) to perceptible, audible sounds because if a sound cannot be heard then its potential to annoy a person is very difficult to establish objectively. This is particularly true in the outdoor environment as opposed to in an audiology booth. Low-frequency and infrasonic energy in wind turbine noise has enough energy to impart a displacement upon a human skin of approximately 10 microns (half the thickness of a strand of hair). Heartbeats, breathing, and normal movements displace the areas of the human body significantly more than 10 microns. In addition, the human body produces multiple sources of sound. Heart sounds are in the range of 27 to 35 dB at 20 to 40 Hz and lung sounds are reported in the range of 5 to 35 dB at 150 to 600 Hz. Therefore, it is difficult to accept the hypothesis that sound-pressure levels from wind turbines in the inaudible portion of the acoustic spectrum have potential to annoy or impart adverse health effects in a direct exposure to outcome continuum.

Common response NOI4 establishes that low-frequency and infrasonic content of wind turbine noise is below recognized thresholds of perception. There is anecdotal evidence that suggests that audible wind turbine noise is annoying to some people.

However, the Chief Medical Officer of Health for Ontario, Canada, stated in a recent report titled *The Potential Health Impact of Wind Turbines*, "The review concludes that while some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying" (Chief Medical Officer of Health for Ontario 2010, as cited in Iberdrola Renewables 2011).

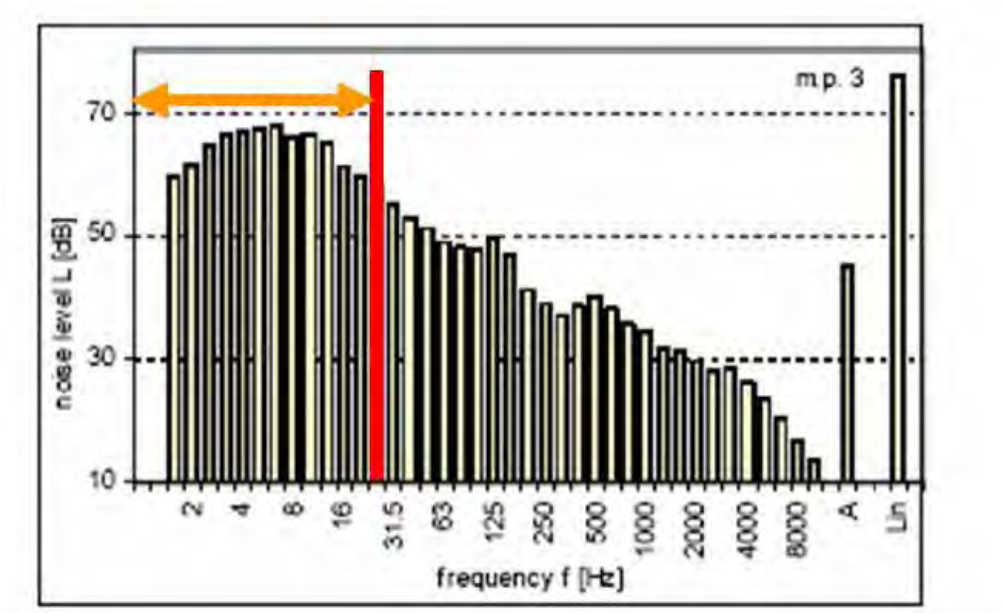
The suggestion that inaudible sound from wind turbines causes annoyance is largely unsupported by objective and factual data. There is no direct, causal link between inaudible sound from wind turbines and annoyance. Pure single tones, also referred to as "prominent discrete tones," exhibit an increase of at least 5 dB from the adjacent octave bands. This makes them discernable as a tone, and they stand out from the overall acoustic environment and are by definition more distinctly audible. Common modern wind turbines do not emit prominent discrete tones.

NOI4: Concerns were raised by commenters regarding human exposure to low-frequency sound and infrasound. Low-frequency sound is generally sound at frequencies between 20and 200 Hz. Infrasound commonly refers to sound at frequencies below 20 Hz. Inaudible sound is not generally assessed in analyses of environmental noise (because it cannot be heard). In addition, there are no locally adopted infrasound or low-frequency sound noise thresholds.

Sound is perceived and recognized by its loudness (pressure) and pitch (frequency). Human hearing of sound loudness ranges between 0 dB (threshold of sound for humans) and 140 dB (very loud and painful sound for most humans). Not all sound pressures are perceived as being equally loud by the human ear because the human ear does not respond equally to all frequencies. The frequency range of human hearing has been found to be between 20 and 20,000 Hz for young individuals with a declining upper-frequency range correlating with increasing age. The sound perception, or "hearing," for humans is less sensitive to lower frequency (low pitch) and higher frequency (high pitch) sounds. As a result, the human ear can most easily recognize sounds in the middle of the audible spectrum, which is ideally between 1 to 4 kHz (1,000 to 4,000 vibrations per second). Although generally considered inaudible, infrasound at very high sound-pressure levels can be audible to some people. Thus, the human ear is sensitive to a wider range of sounds than the generally cited audible range of 20 to 20,000 Hz.

An example of infrasound and low-frequency sound downwind of a Vestas V80 wind turbine is shown in Figure 2.7-1. The infrasonic and low frequency content of the Vestas noise emissions are below the hearing human perception threshold. The Vestas V80 frequency spectrum is similar but several dB less than the worst-case wind turbine used for the Tule Wind Project.

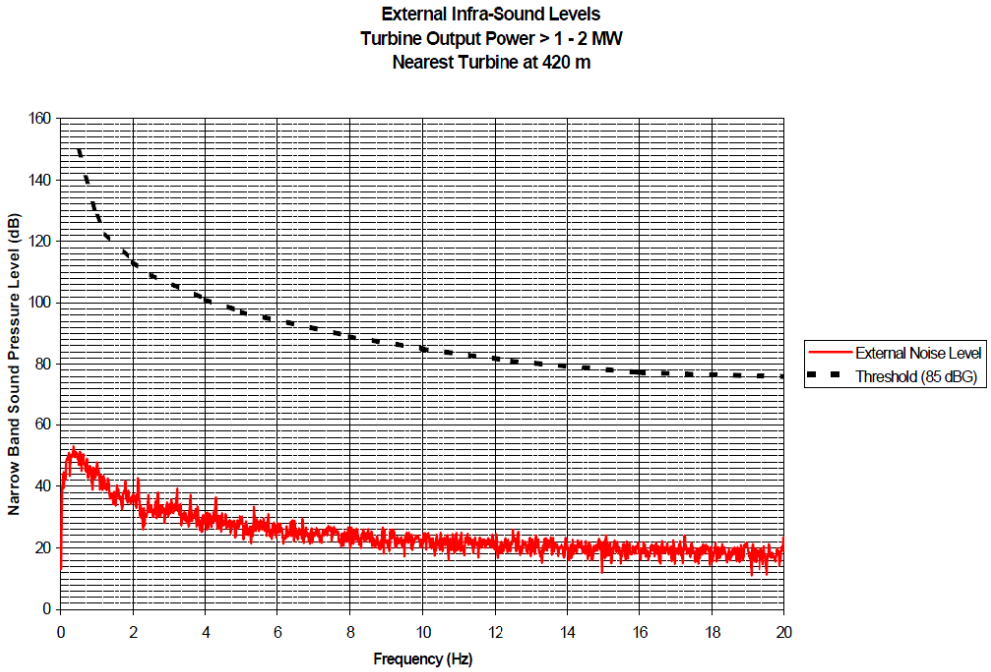
Figure 2.7-1. Spectral Content of Vestas V80 Noise Showing Infrasonic and Low Frequency



Source: Rogers et al. 2006.

The data in Figure 2.7-1 are supported by data reported in "InfraSound, Low Frequency Noise, and Vibration from Wind Turbines" by Dr. Andy McKenzie of the Hayes McKenzie Partnership Ltd, as shown in Figure 2.7-2. The data in Figure 2.7-2 shows that infrasound from a 1 to 2 MW wind turbine operating approximately 420 meters away from the receiver are well below the threshold for perception of infrasound.

Figure 2.7-2. Wind Turbine Noise Measurement Data

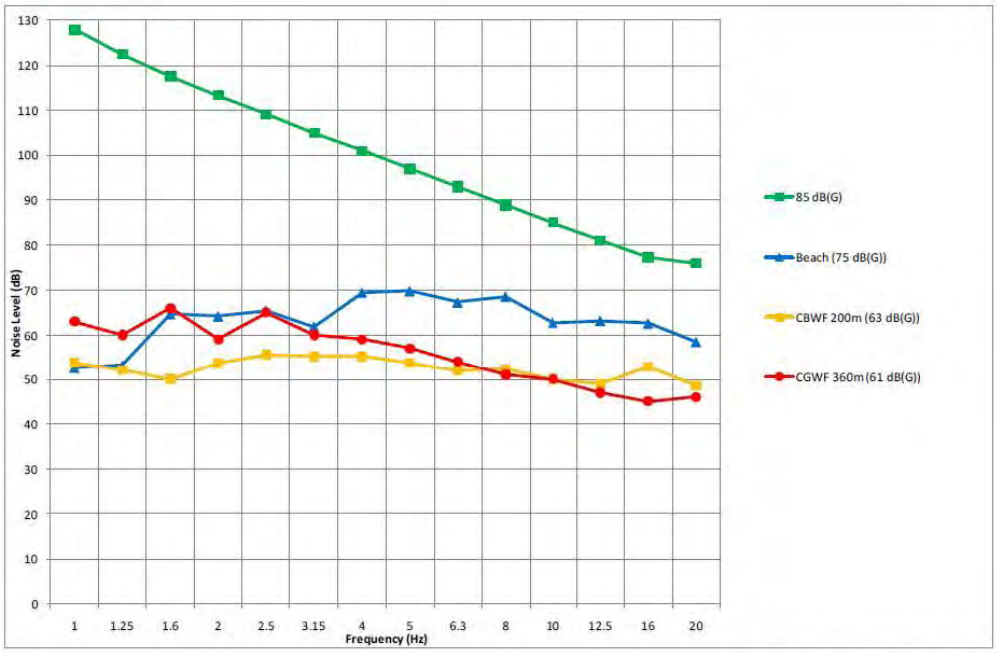


Source: McKenzie 2011.

Additionally, these data are supported by measurement data reported in Australia by the consulting firm Sonus Pty, Ltd. The graph (Figure 2.7-3), by Sonus, compares infrasound measurements at two operating wind farms in Australia, Clements Gap (CGWF – 61 dBG) and Cape Bridgewater (CBWF – 63 dBG), with data measured at a beach in the absence of wind turbine noise. These three data sets are compared with the internationally recognized audibility threshold for infrasonic noise.

The Sonus measurement results indicate that the levels of infrasound in the vicinity of the two Australian wind farms are well below the audibility threshold of 85 dB(G) established by international research. The measurement results are of the same order as that measured from a range of sources, including a beach.

Figure 2.7-3. Infrasound Summary Results from Two Australian Wind Farms



Summary Graph – Infrasound measurement results from two Australian wind farms (Clements Gap at 61 dB(G) and Cape Bridgewater at 63 dB(G)) compared against measurement results at a beach (measured at 75 dB(G)) and the internationally recognised Audibility Threshold (85 dB(G))

Source: Sonus Pty, Limited 2010.

NOI5: Based on information provided by the Minnesota Department of Health and Environmental Health Division (2009):

> The most common complaint in various studies of wind turbine effects on people is annoyance or an impact on the quality of live. Sleeplessness and headache are the most common health complaints and are highly correlated (but not perfectly correlated) with annoyance complaints. Complaints are more likely when turbines are visible or when shadow flicker occurs. Most available evidence suggests that reported health effects are related to audible low frequency noise. Complaints appear to rise with increasing outside noise levels above 35 dBA. It has been hypothesized that direct activation of the vestibular and autonomic nervous system may be response for less common complaints, but evidence is scant.

A report by the Chief Medical Officer of Health of Ontario, Canada (2010, as cited in Iberdrola Renewables 2011), has reviewed the potential health impact of wind turbines and summarizes:

> The review concludes that while some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying.

Low-frequency noise can be problematic if it occurs at very high levels or levels higher than what occurs from wind turbines. Mechanics who work on military aircraft are one example of the subset of the general population who might be routinely exposed to very high levels of low-frequency noise. Excessive exposure to infrasound and low-frequency noise (ILFN), which is defined as all acoustical phenomena occurring at or below the frequency bands of 500 Hz, has been associated with a condition termed "vibro-acoustic disease" (VAD), a thickening of cardiovascular structures, such as cardiac muscle and blood vessels.

Other examples of environments where the ILFN may reach levels and exposures that could lead to VAD include:

- Military, applications of infrasound as a non-lethal weapon
- Work carried out in connection with the Apollo space program (i.e., levels
- equivalent to exposure of astronauts during blast off)
- Echocardiography of aerospace workers (i.e., those working around ground running aero engines)
- Noise risks in military operations.

Levels of infrasound due to the above can be above 125 dB (linear). The infrasound levels due to all of the above bear no connection to the sound produced by wind turbines.

As described in common response NOI4, there is clear, consistent, and objective evidence that modern wind turbines emit very low levels of infrasonic and low-frequency noise. The evidence also shows that these emissions are below the internationally recognized threshold for perception of infrasound. Furthermore, the Chief Medical Officer of Health from Ontario, Canada, stated in the 2010 report (as cited in Iberdrola Renewables 2011), "There is no evidence of adverse health effects from infrasound below the sound pressure level of 90dB."

Long-term exposure to very high levels of low-frequency noise has been shown to have adverse effects on health. It has been demonstrated that high levels of low-frequency noise can excite body vibrations, such as a chest resonance vibration that can occur at a frequency of 50 to 80 Hz. These chest wall and body hair vibrations have also been shown to occur at the infrasonic range. However, in those instances, levels were significantly higher than the amounts of low-frequency noise emitted by wind turbines. Studied health effects of low-frequency sound include vibroacoustic disease, which has been linked to prolonged exposure to high-intensity, low-frequency noise (in excess of 110 dB), not low-intensity, low-frequency noise. Additionally, studies have found that there is no evidence of adverse health effects related to low-intensity, low-frequency noise below 90 dB. Low-frequency sound and infrasound associated with wind turbines are well below 90 dB at receptor locations. Numerous studies have explored the effects of acoustic excitation by measuring the resulting vibration, non-aural effects, and the perception of unpleasantness or annoyance among those exposed to low-frequency noise.

Wind turbines produce modest and acceptable amounts of low-frequency noise, as shown by post-construction noise measurement data publicly available and reasonably obtainable on the internet. A field study performed by Epsilon Associates (2009, as cited in Iberdrola Renewables 2011) measured low-frequency noise associated with two modern turbines, the GE 1.5sle and the Siemens 2.3-93. Using existing ANSI criteria for the evaluation of interior noise levels, Epsilon Associates determined that noise generated by wind farms at distances beyond 1,000 feet were below the low-frequency noise criteria for bedrooms, classrooms, and hospitals (Iberdrola Renewables 2011). In addition to meeting ANSI background noise criteria, the measured interior noise levels also demonstrate that wind turbine setbacks of 1,000 feet will not cause, "more than minimal annoyance (if any) from low frequency noise, and there should be no wind rattles or perceptible vibration of light-weight walls or ceilings within homes" (Epsilon Associates 2009, as cited in Iberdrola Renewables 2011).

The overall noise level and spectrum of the GE 1.5sle turbine is similar to the noise emissions of the GE 1.5 XLE, one of the turbines being considered for use in the Tule Wind Project. The Siemens 2.3-93 turbine, also used in the Epsilon study, has similar sound emissions, within +/- 3 dB, to the 2.0 and 3.0 MW turbines being considered for use in the Tule Wind Project. Current setbacks for the Tule Wind Project are more than 1,500 feet from the nearest non-participating home. Based on the Epsilon noise study, low-frequency noise at a distance of 1,500 feet will have no audible infrasound and will meet ANSI S12.2 criteria for acceptable indoor levels for low-frequency sound (Iberdrola Renewables 2011).

Most of the concerns arising from the notion that wind turbines emit powerful amounts of low-frequency noise stem from the apparent reliance on outdated NASA reports that demonstrate that downwind-configured wind turbines produce high levels of low-frequency noise. The same NASA report also very clearly states that modern upwind-configured wind turbines do not emit nearly as much low-frequency noise as the older, out-of-production, downwind-configured wind turbines. The turbines proposed for the Tule Wind Project would be modern upwind-configured turbines and therefore would generate lesser levels of low-frequency noise than are documented in the sources discussed previously. These levels are not harmful to the human body and in fact are produced by heartbeats and other natural functions. Therefore, no adverse health effects from low-frequency noise are anticipated.

NOI6: Post-construction noise monitoring requirements for wind turbines are fairly new in the United States; therefore, there is not an abundance of noise monitoring data available. A recent field study performed by Epsilon Associates (*A Study of Low Frequency Noise and Infrasound from Wind Turbines, July 2009,* cited in Iberdrola Renewables 2011), contains a detailed discussion of measured low-frequency noise from wind turbines. The study measured infrasound and low-frequency sound associated with two modern turbines, the GE 1.5sle and the Siemens 2.3-93. Using existing ANSI criteria for the evaluation of interior sound levels, Epsilon Associates determined that noise generated by wind farms at distances beyond 1,000 feet were below the low-frequency noise criteria for bedrooms, classrooms, and hospitals (Iberdrola Renewables 2011). In addition to meeting ANSI background noise criteria, the measured interior noise levels also demonstrate that wind turbine setbacks of 1,000 feet will not cause "more than minimal annoyance (if any) from low frequency noise, and there should be no wind rattles or perceptible vibration of light-weight walls or ceilings within homes" (Epsilon Associates 2009, cited in Iberdrola Renewables 2011).

The overall noise level and spectrum of the GE 1.5sle turbine is similar to the noise emissions of the GE 1.5 XLE, one of the turbines being considered for use in the Tule Wind Project. The Siemens 2.3-93 turbine, also used in the Epsilon study, has similar sound emissions, within +/- 3 dB, to the 2.0 and 3.0 MW turbines being considered for use in the Tule Wind Project. Current setbacks for the Tule Wind Project are more than 1,500 feet from the nearest non-participating home. Based on the Epsilon noise study, low-frequency noise at a distance of 1,500 feet will have no audible infrasound and will meet ANSI S12.2 criteria for acceptable indoor levels for low-frequency sound (Iberdrola Renewables 2011).

Infrasound and low-frequency sound exposure is part of the everyday sound exposure. Natural sources of low-frequency and infrasound include wind and moving bodies of water such as rivers and waterfalls. Common anthropogenic sources of low frequency and infrasound include vehicular traffic, aircraft, rail traffic, heating, ventilation, and air conditioning (HVAC) equipment, and other industrial sources. Household appliances and everyday activities, such as washing machines, running, swinging on a swing set, and swimming, also produce low-frequency sound and infrasound.

Additionally, the infrasonic and low-frequency noise emissions from wind turbines are often less than levels emitted by natural sources like ocean waves crashing on a beach (crashing ocean waves often produce a roar that has a distinct low-frequency tonal component that is much louder than the noise emitted by a wind turbine).

The opinion that sound-pressure levels in any frequency range increase with increasing distance from the noise source is not a factual statement. Sound levels in all frequencies, including low frequencies, do not increase with increasing distance from the noise source. Sound pressure waves travel in all directions and therefore lose energy with increasing distance from the noise source. Sound levels diminish as the sound propagates outward along the path from the source to the receiver; this divergence is independent of frequency. A simple analogy is an unshaded light bulb; the amount of light diminishes with increasing distance from the bulb.

There are instances in which sound levels in a particular location would experience a slight increase in sound levels due to the presence of reflective surfaces. This does not mean that the low frequency increases with distances, but that reflective surfaces may cause localized increases in sound of all frequencies. This would be similar to placing a light bulb over a mirror, as some of the light would reflect upwards and may appear brighter. However, there would never be an increase in the amount of light or energy as the distance increases from the source.

NOI7: The standards in the ANSI S12.9 series are intended to provide guidance on measuring environmental sound sources and predicting community response based on sound exposure. The primary purpose of ANSI S12.18 is to measure environmental sound from a specific source and is most commonly used in compliance verification during post-construction. Neither standard provides guidance on calculating sound levels from wind turbines prior to construction; therefore, neither standard was used to calculate sound levels resulting from project-related sound sources.

The noise measurements made for the Tule Wind Project were performed in accordance with recognized standards prior to construction to measure the ambient acoustic environment before wind turbines were built and commenced operation.

The intent of the sound measurement was to characterize the ambient sound environment. The results reflect all aspects of the existing ambient sound environment, including the meteorological conditions present at the time of measurement. The measurement cannot characterize a sound source that isn't there, such as the proposed wind turbines.

The standardized measurement methods with scope and purpose clauses compatible with characterizing the ambient sound environment include ANSI S1.13, ANSI S12.9/Part 2, ASTM E1014, and ASTM E1503. The measurement methods employed for the noise assessment were consistent with these standards in whole or in part and were also consistent with several state and federal agency measurement methods and good engineering practice. For a discussion of calculated sound levels and uncharacteristic conditions, inversions, etc., please refer to common response NOI8. Please refer to common response NOI1 for additional details on ANSI S12.9 and S12.18.

The purpose of a sound power measurement is to quantify the noise emission characteristic of a sound source irrespective of its environment. This makes the resulting sound power level useful for predicting the effect of introducing the noise source into any environment. The IEC 61400 Part 11 measurement standard attempts to remove the influence of the particular environment so the results can be used to predict sound levels in other environments.

Wind turbines have different sound emission characteristics based upon its operating condition. Therefore, the IEC 61400 Part 11 measurement standard states its results as a function of wind speed. Generally, higher wind speeds cause the turbine to operate with higher noise emission levels; however, there is an upper limit to wind turbine noise emissions. At a certain wind speed, which is different for different turbines, the turbine will begin to regulate itself so it does not rotate any faster and there will be a maximum rotation speed even as wind speeds may increase. The results of the sound power measurement include all aspects of the wind turbine itself and are irrespective of uncharacteristic weather patterns, etc.

The noise analysis prepared for the EIR/EIS did not specifically simulate atypical operational conditions such as temperature inversions, uncharacteristic weather patterns, high wind shear above the boundary layer, and periods of atmospheric turbulence. The sound analysis conservatively estimated project-related sound levels

that would be experienced on a daily basis and did not focus on the atypical operational conditions previously stated. Rather, the noise analysis incorporated a number of modeling techniques whose net effect conservatively overestimated noise propagation in the project area. These techniques include assuming that the ground is 100% acoustically reflective; that the noise levels associated with the hot weather package, which includes additional noise from cooling equipment in the nacelle, were occurring all of the time; and other techniques that conservatively overestimate project-related noise levels. The conservative modeling assumptions and their effect on modeling results are as follows:

- Guaranteed sound level v. maximum manufacturer stated +2 dB
- Continuous use of hot weather package + 2.6 dB
- Reflective ground +3 dB
- Continuous downwind conditions for all directions ≈ 0 to 2 dB
- Total effect on calculated sound level 7.6 to 9.6 dB.

The net effect of these conservative assumptions is the overestimation of project-related noise levels. These overestimates account for events like micrometeorological turbulence on the blades, turbine-to-turbine wake interaction, inversions, and other phenomena that potentially affect wind turbine noise generation and propagation. This noise analysis is reasonable, appropriate, and is more conservative than required by the standards of practice in the field of environmental acoustics.

The Tule Wind Project noise model used the turbine operation mode with the highest noise emission characteristic provided by the manufacturer: the highest wind speed operation and the hot weather package. These conservative modeling decisions help ensure that the noise analysis does not under predict project-related noise.

NOI8: The noise analysis report prepared and submitted for this project explains the meteorological assumptions and features used in the Cadna-A noise model developed to calculate project-related noise. Events such as temperature inversions, uncharacteristic weather patterns, high wind shear above the boundary layer, periods of atmospheric turbulence, and inter-turbine turbulence typically last for short durations, sometimes very short durations. Current state-of-the-art acoustical analysis tools do not incorporate meteorological routines that would allow the assessment of micro-climatology like inter-turbine turbulence, atmospheric turbulence, and high wind shear above the boundary layer. Alternatively, conservative assumptions were used in the noise analysis, including use of 100% acoustically reflective ground,

modeling of the hot weather package (which includes additional noise from cooling equipment in the nacelle), continuously downwind conditions in all directions, and the addition of 2 dB to the manufacturer-stated sound emissions. These assumptions ensure that the noise analysis does not understate noise from the project.

Temperature Inversions

Atmospheric conditions influence the propagation of sound. The main effect is refraction (a change in the direction of the sound waves) produced by vertical gradients of wind and temperature. Normally, the temperature decreases steadily with increasing height above the ground. At night, the temperature sometimes decreases with decreasing height; this is called a temperature inversion. During an inversion, the sound waves that would normally travel upward and away from the noise source refracts (bends) downward. This causes noise levels at points away from the source to be louder than they would be under non-inversion conditions.

The sound modeling performed for the Tule Wind Project represents sound levels that would be experienced under downwind propagation, or propagation under a "well developed moderate ground-based temperature inversion, such as commonly occurs at night" (ISO 9613-2, cited in Iberdrola Renewables 2011).

Temperature inversions are most commonly caused by radiative cooling of the ground at night leading to cooling of the air in contact with the ground. Such conditions are especially prevalent on cloudless nights with little wind. If winds occurred at the ground level, the inversion layer would become mixed with the layers above it and the inversion would begin to disappear.

Temperature inversions occurring within the lowest 50 to 100 meters of atmosphere can affect noise levels measured on the ground. Such conditions may increase noise levels by focusing sound wave propagation paths at a single point. Conventional approaches to assessing noise propagation under temperature inversion conditions require knowledge of the temperature gradient and assume that the noise source is located below the temperature inversion, typically near the ground. In summary, when a layer of cool air is trapped at the ground surface (with a layer of warmer air above it) and the winds are still, the resulting temperature inversion is known to focus sound wave propagation paths (from noise sources operating in the layer of cold air, most often on the ground) at a single point on the ground.

The effect of temperature inversions on noise propagation from wind turbines is not typical of other sources. Wind turbines located on top of ridges are often located at elevations that are much higher than nearby receivers. In those circumstances, it is unlikely that conventional temperature inversions in the lower 100 meters of the atmosphere would affect noise propagation from sources elevated as high as wind turbines on top of ridges. A further consideration must be that temperature inversion requires little to no wind in order to minimize atmospheric mixing and hence develop. During calm conditions, the wind turbine generators are unlikely to operate, because the cut-in speed is approximately 3 to 4 meters per second.

In general, sound propagates best under stable conditions with a strong inversion, such as during a clear night with low winds. In those situations, sound levels from wind turbines would be at their lowest. Wind speeds under very stable conditions—Stability Class G—generally are too low to generate electricity, thus, the wind turbines would produce little or no noise. As a result, worst-case conditions for wind turbines tend to be under more moderate nighttime inversions.

Moderate nighttime inversions include periods when winds at the hub height are above the cut-in speed and ground-level winds are still, so that there is no masking noise from ground-level winds. These conditions are most likely to result in the highest levels of amplitude modulation, be most favorable to noise propagation, and therefore result in wind turbine noise being the most perceivable. Post-construction noise measurements were performed during these conditions at both the Mars Hill and Stetson wind farms in Maine. Over 300 hours of measurement data was collected under these conditions and analysis of that data confirmed that noise levels measured under these moderate nighttime inversion conditions were within 5 dBA of modeled noise levels (Iberdrola Renewables 2011).

Temperature inversions can be modeled using current acoustical software using conservative methods that overestimate noise levels (as was done for this project) and also more refined methods. A more refined method involves use of the Conservation of Clean Air and Water in Europe's (CONCAWE's) routine in Cadna-A, which allows a modeler to simulate very specific meteorological conditions including individual stability classes and select wind speeds. Table 2-7A presents a comparison of analysis results of three different and increasingly stable temperature inversions. Using a single Gamesa G87 turbine, one of the proposed turbine types for the Tule Wind Project, a model was developed to compare the sound levels that may be experienced during a temperature inversion. A comparison of modeled sound levels using various atmospheric stability classes and the assumptions used in the *Tule Wind Project – Draft Noise Analysis Report* is presented in Table 2-7A.

Table 2-7A. Comparison of Various Temperature Inversions

Receptor Distance	ISO 9613-2 (Model Used for Tule Sound Study)	CONCAWE[2,3]	
	No Wind Rose[1]	*Stab. Class = E* *Wind = 4.5 meters/second*	*Stab. Class = F* *Wind = 2.5 meters/second*
500 feet	58.1	53.0	44.2
1,000 feet	52.2	49.0	40.2
1,500 feet	48.4	46.0	37.2
2,000 feet	45.6	43.6	34.8

Notes:
1 The Tule sound study used ISO 9613-2 with no wind rose. These parameters represent what is described by ISO 9613-2 as a "well-developed moderate ground-based temperature inversion, such as commonly occurs at night."
2 Meterological corrections were applied to simu;ate inversaions at various stability classes.
3 Sound emissions used for CONCAWE calculations are relative to the operational wind.
Source: Iberdrola Renewables 2011.

Analysis results in Table 2-7A show that the Tule Wind Project noise analysis conservatively overestimates the project-related noise levels in a wide variety of atmospheric stability conditions, including strong inversions with low wind speeds. As shown in Table 2-7A, the modeled results for ISO 9613-2 (that were used for the *Tule Wind Project – Draft Noise Analysis Report*) using no wind, are approximately 2 to 5 dB above the results for conditions consistent with stability class E, and approximately 11 to 16 dB above the results for conditions consistent with stability class F. This demonstrates that the modeling methods performed in the Tule Wind Project noise analysis result in conservative overestimates of project-related noise that are adequately representative of meteorological conditions that lead to the most efficient noise propagation. These conditions include strong temperature inversions with calm winds below the cut-in speed.

The noise analysis performed for the Tule Wind Project modeled a moderate inversion condition. The Tule Wind Project noise analysis also added more than 5 dB of conservatism. In this manner, the Tule noise analysis accounted for moderate inversions and conditions most favorable to noise propagation, when ground-level masking is at its lowest level, and turbine noise is most noticeable.

Uncharacteristic Weather Patterns

Uncharacteristic weather patterns means winds are blowing from a different direction than they normally blow. The primary effect of this condition is to reduce noise levels at upwind receivers and slightly increase noise levels at downwind receivers. Even during these conditions, wind direction may change throughout each hour; therefore, downwind noise levels will vary with fluctuations in wind direction. By comparison,

the Tule Wind Project noise analysis assumes that the wind blows in each direction for the entire duration of an hour. The result of this meteorological condition is conservative overestimates of project-related noise levels during uncharacteristic weather patterns.

High Wind Shear Above the Boundary Layer

Wind speeds generally increase with increasing height above the ground. Irregularities in features on the ground (buildings, terrain, trees, and other vegetation) cause friction between the ground and winds closest to it. That friction slows down wind speeds in the atmospheric layer closest to the ground. Wind shear occurs where the lowest atmospheric layer meets a layer of the atmosphere above it that is not affected by surficial friction: wind shear is the boundary between the lower (slower) winds and the higher (faster) winds.

There is evidence that wind shear increases both the sound power emissions and the amplitude modulation from wind turbines. Wind shear is highest and exhibits the greatest difference between wind speeds at 10 and 80 meters at low wind speeds. Wind shear reduces with increasing wind speed to the point where it is, on average, of a similar value as that used in IEC 61400-11 to define wind turbine sound power levels. The difference between wind speeds at 10 and 80 meters at low wind speeds is more predominant at night. Nighttime wind shear is, on average, higher than daytime. There does not appear to be a large difference between average wind shear in summer and winter. The evidence suggests that shear in winter may be slightly higher but this may be because there are longer nights when the shear is higher. Wind shear on a flat site is significantly higher than that on a hilly site, even a hilly site with low rolling hills. The difference in wind speeds at 10 and 80 meters is also higher on a flat site. This is true at all times of day and all times of the year.

While there is evidence to suggest that wind shear may increase the sound emissions, the effects are site specific and cannot be predicted with currently available data. Wind turbine sound emissions are measured using IEC 61400 Part 11. The wind turbine sound emission standard does not require the reporting of sound emissions under various wind shear conditions; therefore, sound emissions for the proposed turbines, at various wind shear gradients, is unavailable. Additionally, it is infeasible to model noise results over all of the weather conditions and shear gradients that could possibly occur at a site.

However, post-construction noise measurements performed at Mars Hill and Stetson wind farms in Maine indicate that when wind shear conditions exist, measured wind turbine noise levels are within 5 dB of modeled results (Iberdrola Renewables 2011). This reinforces the validity and conservatism of the Tule Wind Project noise analysis.

There are also reports that claim that amplitude modulation may be affected by wind shear. Dr. Andy Moorhouse performed a study, *Research into Aerodynamic Modulation of Wind Turbine Noise*, to determine the prevalence of amplitude modulation in wind farms in the UK and to identify the likely causes of amplitude modulation. Dr. Moorhouse (2007, as cited in Iberdrola Renewables 2011) summarizes his findings:

> The literature review indicated that, although there has been much research into the general area of aerodynamic noise it is a highly complex field, and whilst general principles are understood there are still unanswered questions. Regarding the specific phenomenon of AM there has been little research and the causes are still the subject of debate. AM is not fully predictable at current state of the art. The survey of wind turbine manufacturers revealed that, although there was considerable interest, few have any experience of AM.

As stated by Dr. Moorhouse, there is no standard way to predict the occurrence of amplitude modulation, and there is no universally agreed upon way to assess the potential for annoyance due to it (Iberdrola Renewables 2011). Therefore, it is not possible to model it for the proposed Tule Wind Project. However, as demonstrated above, the Tule noise model conservatively overestimates project-related noise levels.

Atmospheric Turbulence

Atmospheric turbulence causes inflow turbulent sound, meaning that aero acoustic noise is caused by the interaction of the atmosphere and the turbine blades. In *The Beat is Getting Stronger: The Effect of Atmospheric Stability on Low Frequency Modulated Sound of Wind Turbines* (2005, cited in Iberdrola Renewables 2011), G.P. van den Berg defines inflow turbulent sound as being caused, "Because of atmospheric turbulence there is a random movement of air superimposed on the average wind speed. The contribution of atmospheric turbulent to wind sound is named 'in-flow turbulence sound' and is broad band sound stretching over a wide frequency range." A white paper prepared by the Renewable Energy Research Laboratory states that while inflow turbulence sound contributes to the broadband noise, it is not yet fully quantified (Iberdrola Renewables 2011). Therefore, it is not possible to model it for the proposed Tule Wind Project.

The effects of atmospheric turbulence and the random micro-turbulence upon turbine blades will result in both increases and decreases in wind turbine noise emissions on a short-term, transient, instantaneous basis. Over a 1-hour period, their net effect is unlikely to be dramatic. Atmospheric turbulence at the ground level will also create more masking noises at the ground level, making it harder to discern the turbine noise. The absence of atmospheric turbulence and the random micro-turbulent winds that randomly interact with moving wind turbine blades is an ideal condition that does not occur in nature. These micro-turbulent winds occur whenever the wind blows and blades interact with these winds whenever they move through the air. On this basis, it is reasonable to assume that reference sound power levels measured using IEC61400, and upon which the Tule Wind Project sound analysis is based, already incorporate the influence of random micro-turbulent winds. As described previously, the Tule Wind Project noise model conservatively overestimates project-related noise levels.

While atypical conditions such as those listed may temporarily increase sound levels, the sound analysis prepared for the Draft EIR/EIS for the Tule Wind Project focused on conservatively overestimating project-related sound levels that would be experienced on a daily basis.

The noise analyses performed for this project is consistent with the standards of practice in the field of environmental acoustics, and generally overstates the noise impacts. The analysis conservatively ignored ground absorption, and included an additional amount of conservatism added to the sound power level of each wind turbine. The analysis also conservatively assumed that the turbine was operating at its loudest rated sound power level condition for the entire duration of 1 hour. Additionally, this analysis assumed that the most efficient propagation characteristics exist in all direction for the entire duration of 1 hour. These conservative measures are consistent with standard practice in the field of applied environmental acoustics and also help to ensure that wind turbine noise levels from the project are not under-predicted.

Therefore, the noise analysis conducted for the Tule Wind Project meets the standard of practice in the field of environmental acoustics, provides a conservative assessment of the noise from the project, and adheres to the San Diego County Guidelines for Noise Impact Assessment.

NOI9: ISO 9613-2 (Attenuation of Sound during Propagation Outdoors) provides the internationally recognized and accepted methods for calculating environmental noise levels including noise emissions from wind turbines. The Cadna-A software incorporates ISO 9613 in the propagation calculations. The ISO 9613 methods used by Cadna-A were

endorsed by an independent working group of European acoustical consultants. Additionally, post-construction studies performed by Andrew Bullmore and Kenneth Kalinski compared measured sound levels from wind farms with corresponding calculation models of the same wind farms (Iberdrola Renewables 2011). These comparisons showed that wind turbine sound levels modeled in Cadna-A and using the ISO 9613-2 calculation methods can achieve good correlation with the post-construction measurements, effectively validating the calculation for wind-turbine sound sources. The analysis provided in the EIR/EIS provides an accurate and conservative evaluation of the potential noise impacts associated with the Proposed PROJECT.

NOI10: It is difficult to correlate inaudible sounds (in any frequency band) to perceptible, audible sounds because if a sound cannot be heard then its potential to annoy a person is very difficult to establish objectively. This is particularly true in the outdoor environment as opposed to in an audiology booth. We know that the low frequency and infrasonic energy in wind turbine noise has enough energy to impart a displacement upon a human skin of approximately 10 microns (half the thickness of a strand of hair). We also know that heartbeats, breathing, and normal movements displace the areas of the human body significantly more than 10 microns. In addition, the human body produces multiple sources of sound. Sounds produced by the heart are in the range of 27 to 35 dB at 20 to 40 Hz and lung sounds are reported in the range of 5 to 35 dB at 150 to 600 Hz.

There is anecdotal evidence that suggests that audible wind turbine noise is annoying to some people. However, the Chief Medical Officer of Health for Ontario, Canada, stated in *The Potential Health Impact of Wind Turbines* (2010) that, "The review concludes that while some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying" (cited in Iberdrola 2011).

The suggestion that inaudible sound from wind turbines causes annoyance is largely unsupported by objective and factual data. There is no direct, causal link between inaudible sound from wind turbines and annoyance. Pure single tones, also referred to as prominent discrete tones, exhibit an increase of at least 5 dB from the adjacent octave bands. This makes them discernable as a tone, and they stand out from the overall acoustic environment and are by definition more distinctly audible. Common modern wind turbines do not emit prominent discrete tones.

NOI11: Combinations of sound waves "in sync" usually refers to what acousticians call coherent summation. This is applicable to sound only if the two sounds are received in perfect unison and are perfectly identical sound waves. While important for engineering issues such as loudspeaker design, this is not applicable to environmental acoustics. First, the effects of coherent summation are very time and location specific. With a slight move within a couple feet, or a small wind or temperature change, the coherent summation will become incoherent summation (out-of-sync). Furthermore, the broadband sounds from two wind turbines are random noise created by turbulence, which *cannot* be summed coherently. Therefore, the Tule Wind Project is not anticipated to result in any exceedances of the applicable noise limits due to coherent summation effects.

Amplitude modulation refers to the rhythmic increase and decrease in wind turbine noise levels as the blades rotate closer to and away from a stationary listener. Blade thumping typically refers to amplitude modulation that occurs with a "greater than normal degree of regular fluctuation at blade passing frequency." Several literature review and field studies concerning amplitude modulation have been performed but there is little consensus on the cause and prediction of amplitude modulation.

Dr. Andy Moorhouse performed a study to determine the prevalence of amplitude modulation in wind farms in the UK and to identify the likely causes of amplitude modulation. Dr. Moorhouse summarizes his findings in *Research into Aerodynamic Modulation of Wind Turbine Noise* (2007, cited in Iberdrola Renewables 2011):

> The literature review indicated that, although there has been much research into the general area of aerodynamic noise it is a highly complex field, and whilst general principles are understood there are still unanswered questions. Regarding the specific phenomenon of AM [amplitude modulation] there has been little research and the causes are still the subject of debate. AM [amplitude modulation] is not fully predictable at current state of the art.

While amplitude modulation in wind turbine sound can occur, it is not an issue at most locations. The study performed by Dr. Moorhouse determined that amplitude modulation was "considered to be a factor [in noise complaints] in four of the sites, and a possible factor in another eight [out of 127 wind farms surveyed]" (Moorhouse et al. 2007, cited in Iberdrola Renewables 2011). The results of the study show that very few wind farms in the UK had noise complaints resulting from amplitude modulation. Furthermore, the ability to predict the amount of amplitude modulation is still uncertain.

The sound of ocean waves on a beach also exhibit amplitude modulation as the waves travel through their cycle of approach of crashing on the beach and receding. On that basis, amplitude modulation is not intrinsically harmful or unpleasant. During periods of high turbulence, amplitude modulation may be masked by the sound of turbulent winds. When ground-level winds are still and winds at the hub height are above cut-in speed (wind shear), amplitude modulation may be more noticeable to persons outdoors than when highly turbulent winds are present.

The results of Dr. Moorhouse's study of amplitude modulation from wind farms showed that (Iberdrola Renewables 2011):

> 27 of the 133 wind farm sites operational across the UK at the time of the survey had attracted noise complaints at some point. An estimated total of 239 formal complaints have been received about UK wind farm sites since 1991, 152 of which were from a single site. The estimated total number of complainants is 81 over the same sixteen year period. This shows that in terms of the number of people affected, wind farm noise is a small scale problem compared with other types of noise; for example the number of complaints about industrial noise exceeds those about wind farms by around three orders of magnitude. In only one case was the wind farm considered by the local authority to be causing a statutory nuisance. Again, this indicates that, despite press articles to the contrary, the incidence of wind farm noise and AM [amplitude modulation] in the UK is low. AM [amplitude modulation] was considered to be a factor in four of the sites, and a possible factor in another eight. Regarding the four sites, analysis of meteorological data suggests that the conditions for AM [amplitude modulation] would prevail between about 7% and 15% of the time. AM [amplitude modulation] would not therefore be most days, although it could occur for several days running over some periods. Complaints have subsided for three out of these four sites, in one case as a result of remedial treatment in the form of a wind turbine control system. In the remaining case, which is a recent installation, investigations are ongoing.

Studies and literature review done to date show that amplitude modulation can be reported in some noise complaints. There is no standard way to predict its occurrence and there is no universally agreed upon way to assess the potential for annoyance due to it. Therefore, it is not possible and necessary to attempt to model it for the proposed Tule Wind Project.

G.P. van den Berg reported that often late in the afternoon or in the evening, the turbine sound acquires a distinct "beating" character, the rhythm of which is in agreement with the blade passing frequency (Iberdrola Renewables 2011). He also notes: "It is not clear to what degree this fluctuating character determines the relatively high annoyance caused by wind turbine sound and to a deterioration of sleep quality….wind turbine sound measurements are easier when performed in a stable atmosphere, which agrees well with the night being the sensitive period for noise immission" (van den Berg 2005, cited in Iberdrola Renewables 2011).

However, post-construction noise measurements performed at the Mars Hill and Stetson wind farms under the stable conditions that van den Berg recommends show that measured noise levels are within 5 dBA of modeled noise levels, and were also within acceptable ranges. The Tule Wind Project noise analysis incorporated over 5 dBA of conservatism, and in that regard adequately assessed project-related noise levels. Furthermore, the actual force upon a body created by the infrasonic and low-frequency noise emissions from operating wind turbines creates a displacement of approximately 10 microns, or one-tenth the thickness of the average human hair. Normal breathing, heartbeats, and body motions produce larger displacements than 10 microns and do not cause adverse health effects. For this reason, there is limited potential for adverse human health effects due to the operation of wind turbines.

NOI12: Through a series of measurements, Epsilon Associates determined that at a distance of 1,000 feet sound emissions from GE 1.5sle and Siemens 2.3-93 wind turbines conform to applicable ANSI standards, including ANSI/ASA S12.9 Part 4 and ANSI/ASAS 12.2 (Iberdrola Renewables 2011). Measurement data was collected through a series of interior and outdoor measurements performed at existing wind farms. Data collected in the field study consisted of outdoor measurements at various distances from the turbines and concurrent interior and exterior measurements at residences. Comparing measured sound levels with ANSI criteria for the evaluation of interior sound levels, Epsilon Associates determined that sound generated by wind farms at distances beyond 1,000 feet were below the low-frequency noise criteria for bedrooms, classrooms, and hospitals. In addition to meeting ANSI background noise criteria, the measured interior noise levels also demonstrate that wind turbine setbacks of 1,000 feet will not cause "more than minimal annoyance (if any) from low frequency noise, and there should be no wind rattles or perceptible vibration of light-weight walls or ceilings within homes" (Epsilon Associates 2009, cited in Iberdrola Renewables 2011).

As previously noted, the distance of 1,000 feet is based on field measurements; therefore, the elevation between the turbine and each monitoring location may vary. The exact height of the turbines was not noted in the report; therefore, the elevation of the turbines in comparison to the residences cannot be determined. Setbacks for the Tule Wind Project are based on cumulative sound levels, not a single turbine setback, and account for site-specific elevation and terrain. The San Diego County noise ordinance requires that operational noise comply with San Diego County Code of Regulatory Ordinances Section 36.404. HDR performed detailed noise modeling of project-related sound to determine the compliance with the noise ordinance. The model created for the Tule Wind Project accounts for the current turbine layout, number of total turbines, elevation, and site-specific terrain.

Please also refer to common response NOI5.

NOI13: Siting and selection of the appropriate wind turbine model are the primary noise control methods that are incorporated into the design of the proposed wind turbine facility. It is also important to note that modern turbines have additional noise reduction technology from what was available in previous turbine generations. Technological advancements that have most contributed to reduced sound emissions from wind turbines include rotor placement, pitch-control rotors, low noise gearboxes, use of insulated nacelles, vibration-isolated mechanical equipment, and variable speed operation.

NOI14: Analysis conducted in the EIR/EIS is based on thresholds established by respective agencies as of the date of publishing the Draft EIR/EIS (i.e., San Diego County's approved noise ordinance and standards). Any evaluation and resulting impact determination in the EIR/EIS based on future studies and thresholds yet to be established would not be possible and would be speculative in nature. Changes to noise thresholds that may occur in the future are outside the scope and purpose of the EIR/EIS. Regardless, the noise evaluation and analysis provided within the EIR/EIS included an extensive and complete evaluation of all potential noise impacts as required under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

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2.8 PUBLIC HEALTH AND SAFETY

Summary of Issues Raised

Table 2-8 provides a list of recurring comments related to public health and safety addressed by common responses.

Table 2-8 Common Public Health and Safety Response Topics

Common Response/Issue		Origin of Comment
PHS1:	Inadequacy of analysis of health effects of shadow flicker	D7 – Backcountry Against Dumps (Comment D7-2) D18 – Backcountry Against Dumps (Comment D18-2) D25 – Pinney, Caldwell, and Pace (Comment D25-3) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-19, D28-62, D28-108) D31 – E-Coustic Solutions (Comment D31-5) F30 – Barbara Ashbee (Comment F30-1) F43 – Robert and Kathryn McCallister (Comments F43-3, F43-10) F63 – Carmen Krogh (Comments F63-1, F63-4, F63-16, F63-19, F63-25, F63-26, F63-27, F63-28, F63-29, F63-45, F63-46, F63-47, F63-48, F63-49) F65 – Jeffrey and Paula Byrd (Comments F65-3, F65-9) F70 – Marie and Scott Morgan (Comment F70-4) F71 – Mrs. Ken Oppenheimer (Comments F71-3, F71-9, F71-14) F72 – Michele Strand (Comments F72-3, F72-10, F72-15) F90 – Jeffrey and Laura McKernan (Comment F90-2) F91 – Crosby Milne (Comments F91-3, F91-9) F108 – Steven and Laurie Squillaci (Comments F108-2, F108-3) H1 – Steve Washer (Comment H1-6)
PHS2:	Failure to address impacts of stray voltage or "dirty electricity"	A3 – Congressman Duncan Hunter (Comment A3-5) D7 – Backcountry Against Dumps (Comment D7-2) D18 – Backcountry Against Dumps (Comment D18-2) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-14, D28-62, D28-108) F30 – Barbara Ashbee (Comment F30-1) D31 – E-Coustic Solutions (Comment D31-5) F43 – Robert and Kathryn McCallister (Comments F43-3, F43-9, F43-12) F44 – Paul Thompson (Comment F44-9) F63 – Carmen Krogh (Comments F63-1, F63-4, F63-19, F63-25, F63-26, F63-27, F63-28, F63-29) F65 – Jeffrey and Paula Byrd (Comments F65-3, F65-8, F65-11) F69 – Mary Lu Brandwein (Comment F69-18) F70 – Marie and Scott Morgan (Comment F70-4) F71 – Mrs. Ken Oppenheimer (Comments F71-3, F71-8, F71-11) F72 – Michele Strand (Comments F72-3, F72-9, F72-12) F90 – Jeffrey and Laura McKernan (Comment F90-2) F91 – Crosby Milne (Comment F91-3)

Table 2-8 (Continued)

Common Response/Issue	Origin of Comment
	F108 – Steven and Laurie Squillaci (Comment F108-3) H1 – Steve Washer (Comments H1-5, H1-8)
PHS3: Adequacy of peer-reviewed research and epidemiological studies regarding turbines' health impacts	A3 – Congressman Duncan Hunter (Comments A3-5, A3-6, A3-9) D7 – Backcountry Against Dumps (Comment D7-2) D18 – Backcountry Against Dumps (Comment D18-2) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-14, D28-19, D28-62, D28-64, D28-108) D31 – E-Coustic Solutions (Comment D31-5) F9 – Mary Lu Brandwein (Comment F9-1) F30 – Barbara Ashbee (Comment F30-1) F41 – Earl Goodnight (Comment F41-2) F43 – Robert and Kathryn McCallister (Comments F43-3, F43-7, F43-8, F43-12) F44 – Paul Thompson (Comments F44-5, F44-6) F63 – Carmen Krogh (Comments F63-1, F63-4, F63-5, F63-15, F63-19, F63-20, F63-21, F63-23, F63-24, F63-25, F63-26, F63-27, F63-28, F63-29, F63-57) F64 – Carmen Krogh (Comment F64-3) F65 – Jeffrey and Paula Byrd (Comments F65-3, F65-6, F65-7, F65-11) F69 – Mary Lu Brandwein (Comments F69-9, F69-10, F69-17, F69-22, F69-25, F69-26, F69-28, F69-30) F70 – Marie and Scott Morgan (Comments F70-4, F70-6) F71 – Mrs. Ken Oppenheimer (Comments F71-3, F71-6, F71-7, F71-11) F72 – Michele Strand (Comments F72-3, F72-6, F72-8, F72-12) F90 – Jeffrey and Laura McKernan (Comment F90-2) F91 – Crosby Milne (Comment F91-3) F97 – Mary Lu Brandwein (Comments F97-5, F97-14) F108 – Steven and Laurie Squillaci (Comment F108-3) F109 – Patricia and Elliott Stuart (Comment F109-1) H1 – Steve Washer (Comments H1-11, H1-3, H1-4, H1-8)
PHS4: Need for EMF precautionary measures	D7 – Backcountry Against Dumps (Comment D7-2) D18 – Backcountry Against Dumps (Comment D18-2) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-62, D28-108) D31 – E-Coustic Solutions (Comment D31-5) F11 – Ginger Bonamo (Comment F11-6) F30 – Barbara Ashbee (Comment F30-1) F43 – Robert and Kathryn McCallister (Comment F43-3) F63 – Carmen Krogh (Comments F63-1, F63-4, F63-19, F63-25, F63-26, F63-27, F63-28, F63-29) F65 – Jeffrey and Paula Byrd (Comment F65-3) F67 – Mark Ostrander (Comment F67-18) F69 – Mary Lu Brandwein (Comments F69-9, F69-17, F69-18, F69-25) F70 – Marie and Scott Morgan (Comment F70-4)

Table 2-8 (Continued)

Common Response/Issue	Origin of Comment
	F71 – Mrs. Ken Oppenheimer (Comment F71-3) F72 – Michele Strand (Comment F72-3) F91 – Crosby Milne (Comment F91-3) F108 – Steven and Laurie Squillaci (Comment F108-3)
PHS5: Protocol for considering results of future studies	D27 – Backcountry Against Dumps (Comment D27-3) F67 – Mark Ostrander (Comment F67-18) F69 – Mary Lu Brandwein (Comments F69-18, F69-21) F108 – Steven and Laurie Squillaci (Comments F108-1, F108-3)
PHS6: Long-term monitoring of health effects and protocol for resolving complaints	D27 – Backcountry Against Dumps (Comment D27-3) F43 – Robert and Kathryn McCallister (Comment F43-12) F63 – Carmen Krogh (Comments F63-11, F63-12, F63-13) F65 – Jeffrey and Paula Byrd (Comment F65-11) F67 – Mark Ostrander (Comment F67-18) F69 – Mary Lu Brandwein (Comment F69-29) F71 – Mrs. Ken Oppenheimer (Comment F71-11) F72 – Michele Strand (Comment F72-12) H1 – Steve Washer (Comment H1-8)
PHS7: Decommissioning should more appropriate standards be identified to reduce health effects	D27 – Backcountry Against Dumps (Comment D27-3) F11 – Ginger Bonamo (Comment F11-3) F69 – Mary Lu Brandwein (Comment F69-13)

RECURRING COMMENTS

PHS1: Comment suggests that the EIR/EIS is inadequate because it does not address the potential for shadow flicker to occur. Comment suggests that shadow flicker results in adverse health effects and a safety concern (e.g., vehicle driver distraction) and that the EIR/EIS is inadequate because the health effects of shadow flicker are not considered and mitigation is not provided to address impacts.

PHS2: Comment suggests that the document is inadequate because it does not fully address the effects of stray voltage or "dirty electricity" on public health and lacks an adequate rationale for the omission.

PHS3: Comment suggests that adequate, peer-reviewed research has not been conducted in regard to the human health effects of wind turbines in order to determine appropriate guidelines for turbine setbacks, low frequency noise levels generated, and maximum human exposure to wind turbines. Comment also suggests that wind turbine development should not occur until this research is completed.

PHS4: Comment suggests that although epidemiological studies are not available to evidence a causal relationship between EMF and adverse health effects, some precautionary measures are warranted.

PHS5: Comment suggests that the EIR/EIS include a protocol for considering the results of future studies in the areas of EMF and appropriate low frequency noise and noise/infrasound thresholds for humans.

PHS6: Comment suggests that there should be long-term surveillance of residents near wind facilities to monitor potentially adverse health effects related to turbines and that there should be a protocol for resolving adverse health effects or other negative impacts if complaints are issued.

PHS7: Comment suggests that the EIR/EIS should address deconstruction and decommissioning of the wind projects in the case that future research identifies more appropriate standards should be implemented to reduce health effects.

Common Responses

PHS1: The anticipated visual impacts of the proposed Tule Wind Project are identified in Section D.3, Visual Resources, of the EIR/EIS. Analysis regarding potential adverse health and safety affects as a result of the proposed wind turbines is provided in Section D.10, Public Health and Safety, of the EIR/EIS.

According to Iberdrola Renewables, Inc. (2011a, 2011b):

Shadow flicker is commonly defined as alternating changes in light intensity at a given stationary location. In order for shadow flicker to occur, three conditions must be met:

- The sun must be shining with no clouds obscuring the sun;
- The rotor blades must be spinning and be located between the receptor and the sun; and
- The receptor must be sufficiently close to the turbine to be able to distinguish a shadow created by the turbine.

The frequency of occurrence of shadow flicker at a given receptor tends to decrease with increasing distance between turbine and receptor. Additionally, the intensity of shadow flicker at a given receptor also decreases with increasing distance between turbine and receptor because the shadow cast by the rotor blade decreases in size as the distance from the turbine increases. The combination of these two factors means that even for receptors which are in a theoretical path of a shadow cast from a

proposed turbine, a discernable shadow will not be realized due to the distance between many of these receptors and the proposed turbines.

For receptors that have the potential to experience shadow flicker from wind turbines, the number of experienced shadow flicker hours is generally small for a number of reasons, including the daily change in the sun's path and cloud cover, the fact that turbines do not operate 100% of the time over the course of the year, and typical setback requirements.

For the Tule Wind Project, the proposed location of the wind turbines in relation to nearby residences and sensitive receptors (i.e., occupied house) is such that the vast majority of proposed turbines will be physically unable to cast a shadow in the direction of the vast majority of receptors, including the largest group of receptors south of Interstate 8 (I-8) near Old Highway 80 and several, though not all, receptors north of I-8. That is to say, a turbine that lies within approximately 60 degrees due north relative to a receptor at the Tule Wind Project's latitude, will never cast a shadow on that receptor.

While the vast majority of receptors near the project area will have no shadow flicker from the Tule Wind Project turbines, a limited shadow flicker model run was made to determine potential shadow flicker that could occur at several sensitive receptors. Receptors within 2,000 meters (6,562 feet) of any proposed turbine were considered. Beyond 2,000 meters, the human eye would not be able to discern a shadow cast from a wind turbine. Of the identified receptors within 2,000 meters of proposed turbines, four homes were included in the model run, while others were not included in the model run because it is physically impossible for any proposed turbine to cast a shadow on these receptors due to the fact these receptors lie within 60 degrees of due north from the receptors, outside of the sun's path at any point in the year. The modeling was completed using many different inputs, including:

1. Real Data
    - Actual coordinates of turbines
    - Actual coordinates of receptors
    - Actual topographic data
2. Conservative Assumptions
    - Specifications of the turbines being considered with the highest hub height and longest rotor diameter

- 100% turbine operation
- No vegetative screening
- Receptors can be impacted from all directions (i.e., "greenhouse mode")

3. Realistic Features

- Actual wind data from a local meteorological tower to account for the percentage of time wind blows from each direction
- National Weather Service sunshine probability data to approximate average cloud cover.

This combination of inputs results in conservative model results. As shown in the table below, the home with the most shadow flicker as predicted by the model is on the northwest side of the project where an annual total of 17 hours, 36 minutes of shadow flicker was predicted. Attached are the corresponding graphics depicting the classic butterfly pattern associated with shadow flicker.

Table 1. Shadow Flicker Modeling Results

Receptor ID	Receptor Location (UTM NAD83 Zone 11)[a]		Elevation	Shadow Hours/Year	Shadow Days/Year	Max Shadow Hours per Day	Hours/Year
	X - Coordinate	*Y - Coordinate*	*[m]*	*[HH:MM/ Year][b] (Worst Case)*	*[Days/Year][c] (Worst Case)*	*[HH:MM/Day][d] (Worst Case)*	*[HH:MM/Yr][e] (Conservative)*
Home_1	569,149.57	3,619,849.70	1,133.9	24:15	78	0:27	14:11
Home_32	566,421.29	3,619,605.44	1,111.4	13:40	82	0:13	9:14
Home_42	566,409.75	3,620,055.86	1,121.5	9:55	59	0:14	6:20
Home_47	557,803.90	3,630,391.08	1,429.7	32:32	151	0:29	17:36

Notes:

a. The coordinate system is the Universal Transverse Mercator (UTM) system, using North American Datum 1983 (NAD 83), Zone 11.

b. Total hours per year of shadow flicker at this receptor under worst-case conditions.

c. Days per year in which shadow flicker is possible at this receptor under worst-case conditions.

d. The maximum daily hour and minutes of shadow flicker at this receptor, under worst-case conditions. This value is the single day maximum due to the combination of receptor and turbine locations, and sun path across the sky. All other days will be less than this maximum as the sun path changes throughout the year. All days will also be less than this maximum due to real world conditions such as cloud cover, changes in wind direction, and less than 100% wind turbine operation.

e. Conservatively predicted hours of shadow flicker at this receptor, including sunshine probability and actual wind direction data. Actual hours should be less than this value due to less than 100% wind turbine operation, and other mitigating factors such as screening due to trees or structures.

Source: Iberdrola Renewables, Inc. 2011b.

Actual shadow flicker hours experienced are expected to be significantly less due to the conservative assumptions listed. To put this value in perspective, the total annual daylight hours in nearby Chula Vista (and equivalent latitudes) is approximately 4,444 hours; therefore, this conservative amount represents less than 0.4% of the total possible sunlight hours in a year. This value also does not account for any times when the residents are not home (e.g., while at work, on vacation, running errands) or are inside their home. Additionally, the value also assumes the turbines are operating 100% of the time. Therefore, any shadow flicker effects would be less than the 0.4% value. As discussed in greater detail below, as well as in common responses PHS3 and NOI5, there is currently no published scientific evidence to positively link wind turbines with adverse health effects.

Shadow flicker from wind turbines does not cause seizures in persons with photosensitive epilepsy. Data from the Epilepsy Foundation indicates that although the frequency of flashing light that is most likely to cause seizures varies from person to person, generally, the frequency of flashing lights most likely to trigger seizures is between 5 and 30 Hertz (Hz refers to flashes per second). The large modern three-bladed wind turbines under consideration for this project rotate at approximately 19 revolutions per minute (rpm) or less. Even assuming a slightly faster rotation speed of 20 rpm, the blade passing frequency is approximately 1 Hz (20 rev/min * min/60 sec * 3 blades), is well below the first baseline for the critical frequency of 5 Hz.

There is currently no published scientific evidence to positively link wind turbines with adverse health effects. The majority of documentation related to non-seizure health impacts due to shadow flicker consists of informal testimonials given by residents or drivers on roadways in proximity to a wind turbine. These testimonials cite headaches, vertigo, nausea, blinding effects, disorientation, loss of balance, and increased levels of stress and anxiety as symptoms directly related to wind turbine shadow flicker. These testimonials are primarily available on websites often cited by anti-wind advocates rather than formal medical literature. Some complaints regarding these symptoms do appear in more formal materials, but are merely reported and are not studied or discussed in any detail. Several of these sources state that complaints of headaches and other similar symptoms are highly, but not perfectly, correlated with annoyance complaints. To date, the available published, peer-reviewed literature states that no studies or scientific evidence links shadow flicker to adverse health impacts.

A concern that is occasionally raised is that shadow flicker occurring on a roadway could distract drivers and cause accidents. In order to obtain a driver's license, motorists are generally evaluated through a road test on their ability to react

appropriately to the various situations they encounter. Shadows on the roadway or roadside distractions are a common occurrence. A whole segment of the advertising industry has been developed that takes advantage of the passing motorist attention. This includes digital billboards, or commercial electronic-variable message signs (CEVMS), which are allowed under the national Outdoor Advertising Act. Recent studies have not identified any additional risk caused by such signs. Thus, it is highly unlikely that wind turbines or their fleeting shadows will pose any undue risks due to attention-demanding qualities.

Shadows on roadways can be caused by nearby trees or buildings, or the Earth's terrain itself. A car passing through shadows caused by anything can experience shadow flicker at very high frequencies dependent on vehicle speed and the object(s) causing the shadow. Wind turbines, a single passing cloud, or an airplane can cause moving shadows on roadways. Additionally, driving by hybrid poplar trees used as windbreaks or a series of palm trees as landscaping enhancements could cause the same effect. Regardless of the source of the shadow or any other potential change that a driver notices gradually or suddenly, it is generally the responsibility of the motorist to maintain control of their vehicle in the face of any situation they encounter. A moving car would pass quickly through any shadow on a road caused by a turbine associated with the Tule Wind Project, and therefore any potential for distraction would be remote. Because vehicles on roadways are not stationary objects, it is not appropriate to include roadways as part of a shadow flicker analysis, as shadow flicker is commonly defined as alternating changes in light intensity at a given stationary location.

The National Highway Traffic Safety Administration (NHTSA) describes driver distraction as something that could present a serious and potentially deadly danger, and identifies various forms of distracted driving, including cell phone use, texting, drinking, talking with passengers, and using in-vehicle technologies and portable electronic devices, along with less obvious forms of distractions, including daydreaming or dealing with strong emotions. Current research involving motor vehicle accidents have highlighted the increased risk of driver activities that focus on attention diverting activities, such as cell phone use, map reading, etc. and have not identified shadow flicker or shadows in general as a source of driver distraction sufficient to increase the risk of accidents.

As illustrated, shadows caused by the wind turbines would only impact a small number of residences, the worst of which would be potentially impacted by shadow flicker effects less than 0.4% of the total daylight time in any given year.

PHS2: According to the data request response from Iberdrola Renewables (2011a):

> Electromagnetic energy and "dirty electricity" refer to different phenomena. As described in Draft EIR/EIS Section D.10.8.1, an Electromagnetic Field (EMF) is a physical field produced by electrically charged objects, when a current passes through a wire. Dirty electricity, on the other hand, is poor power quality. This poor power quality could create a ground current that will lead to an unbalance circuit problem on the system, which in turn might cause stray voltage.
>
> Wind turbines create electromagnetic fields from the power facilities that are a part of the turbine makeup. As described in the Draft EIR/EIS Section D.10.8.1, electric and magnetic fields attenuate rapidly with distance from the source. The electrical wiring of the wind turbine generator is also surrounded by an electrically conductive metal cover, so any EMF levels outside of the wind turbine would be very low. In addition, given the large distances between the proposed turbines and homes (2,407 feet or greater) and the Cottonwood and Lark Canyon campgrounds (2,356 feet and 1,123 feet or greater, respectively), the turbines are not anticipated to result in measurable levels in EMF at residences or campgrounds. Finally, as discussed in Section D.10.8.6 of the Draft EIR/EIS, there is inadequate or no evidence of health effects at low exposure levels. Stray voltage could occur if the electrical equipment in the turbines is not maintained properly. Induced current or stray voltage has the potential for adverse health effects if not properly grounded. As part of the commissioning of the project, turbines will be examined to confirm that they are properly grounded, as discussed in Project Design Feature (PDF) 17 of the San Diego Rural Fire Protection District (SDRFPD) approved Fire Protection Plan, dated November 3, 2010. Regular operations and maintenance measures will similarly confirm that there are no stray voltage issues through the life of the project. Therefore, no health effects would be anticipated to occur from stray voltage.

Please refer to common response INT2.

PHS3: As described in common response NOI5, scientific evidence available to date does not demonstrate a direct causal relationship between wind turbine noise and adverse health effects. Please refer to common response NOI5 for a detailed explanation. Please also refer to common response NOI4 regarding the levels of low-frequency noise generated by the proposed wind turbine project; common response NOI10 regarding the human response to noise generated from wind turbines; and common response NOI12 regarding the establishment of setbacks from wind turbine to sensitive receptors.

PHS4: As suggested by several commenters, independent scientific evidence is not currently available to demonstrate a direct causal relationship between EMF and adverse health effects. The analysis conducted in Section D.10, Public Health and Safety, of the EIR/EIS is based on thresholds established by the appropriate agencies as of the date the EIR/EIS was published, including CPUC's current guidelines regarding EMF.

As described in EIR/EIS Section D.10.8.3, Scientific Background and Regulations Applicable to EMF (under the heading "CPUC Guidelines"), the CPUC implemented a decision in 1993 (D.93-11-013) that, in part, implemented a number of EMF measurement, research, and education programs, and provided the direction that led to the preparation of the California Department of Health Services (DHS) comprehensive review of existing studies related to EMFs from power lines and associated potential health risks. The CPUC did not adopt any specific numerical limits or regulation on EMF levels related to electric power facilities. In 2006, CPUC affirmed the low-cost/no cost policy to mitigate EMF exposure from new utility transmission and substation projects by adopting rules and policies to improve utility design guidelines for reducing EMFs, issued in a separate report. The CPUC stated that, "at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences…As stated in the rulemaking initiating this proceeding, at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences" (CPUC 2006).

At this time, the CPUC has not implemented a general requirement that utilities include non-routine mitigation measures or other mitigation measures that are based on numeric values of EMF exposure, and has not adopted any specific limits or regulations on EMF levels related to electric power facilities. As the public agency charged with serving the public interest by ensuring the provision of safe and reliable utility services, such a position is reasonable given the current science and available data.

PHS5: The analysis conducted in the EIR/EIS is based on thresholds established by the appropriate agencies as of the date of publishing the EIR/EIS, including the use of San Diego County's approved noise ordinance and CPUC's current ruling and guidelines regarding EMF. Any evaluation and resulting impact determination in the EIR/EIS based on future studies and thresholds not yet established would not be possible and would be outside the scope and purpose of the EIR/EIS. Also refer to common response NOI14.

PHS6: As described in EIR/EIS Section B.4.4, Tule Wind Project Applicant Proposed Measures, the project applicant will implement a complaint resolution procedure prior to construction in order to assure that any complaints regarding construction or operational noise are promptly and adequately investigated and resolved (APM TULE-NOI-15). As there are currently no established thresholds for determining the significance of health effects resulting from wind turbines and no independent scientific evidence available to demonstrate a direct causal relationship between wind turbines and adverse health effects (see common response NOI5), it is outside the scope and purpose of the EIR/EIS to require long-term health monitoring as it is not possible to determine whether such a program may be warranted in the future and what parameters would be appropriate to monitor.

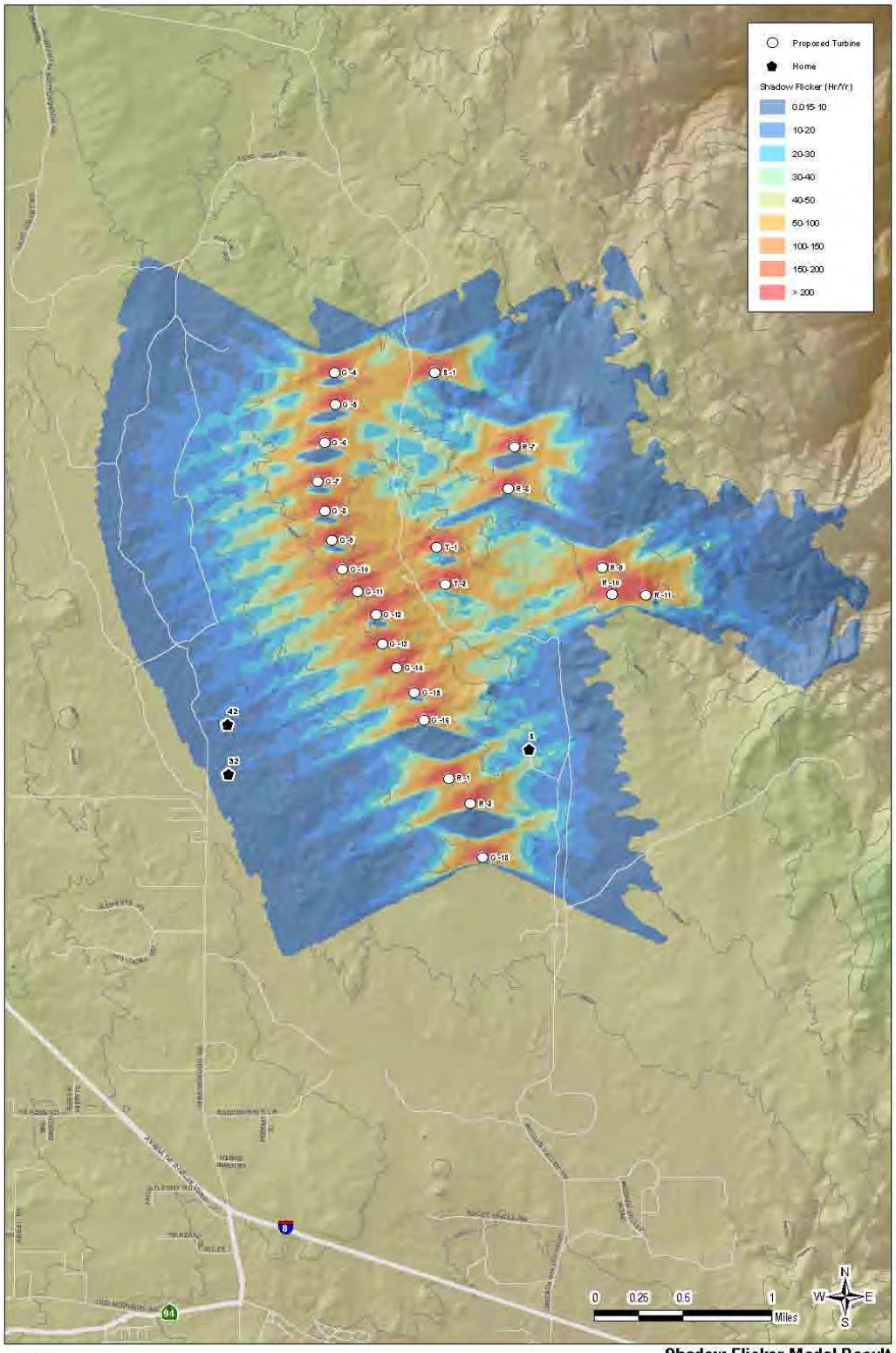
PHS7: As described in the EIR/EIS, decommissioning of the wind turbines is expected to occur in approximately 30 years. Potential noise and public health/safety impacts resulting from future decommissioning activities are discussed in Section D.8, Noise, and Section D.10, Public Health and Safety, of the EIR/EIS, respectively. Any discussion and resulting evaluation of decommissioning activities as a result of future research or standards not yet established would not be possible and would be outside the scope of the EIR/EIS.

References Cited

CPUC (California Public Utilities Commission). 2006a. Decision 06-01-042. Opinion on commission policies addressing electromagnetic fields emanating from regulated utility facilities. San Francisco, CA: CPUC, pp. 1–22.

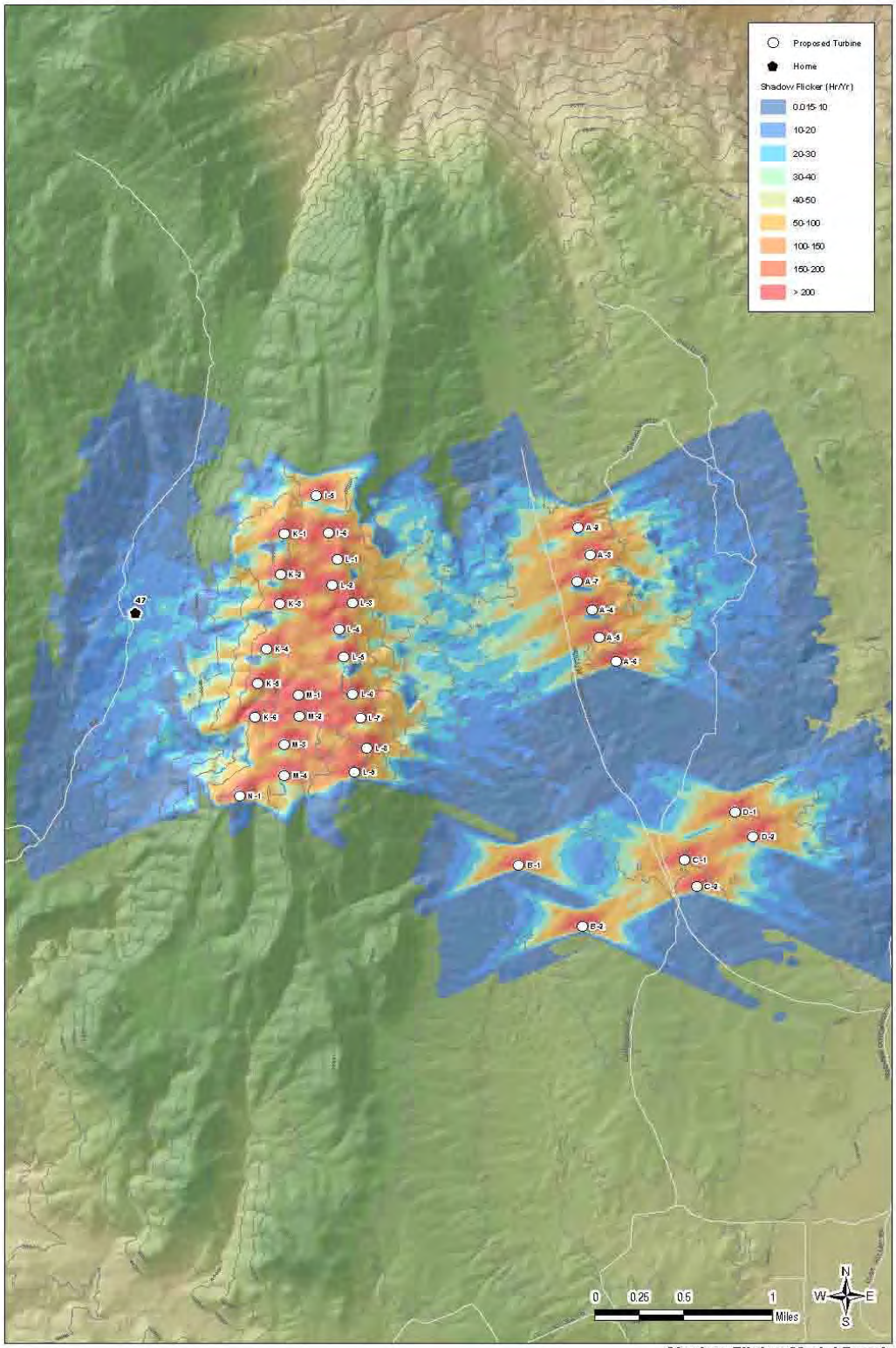
Iberdrola Renewables, Inc. 2011a. "Re: Tule Wind Project – Response to Data Request No. 14 (Noise and Public Health)." Letter from J. Durocher (Iberdrola Renewables) to I. Fisher (California Public Utilities Commission). April 28, 2011.

Iberdrola Renewables, Inc. 2011b. "Re: Tule Wind Project – Response to Data Request No. 14 (Noise and Public Health)." Letter from J. Durocher (Iberdrola Renewables) to I. Fisher (California Public Utilities Commission). May 2, 2011.



HDR ONE COMPANY | Many Solutions

Shadow Flicker Model Result
FIGURE 1 of 2
Tule Wind, LLC | Tule Wind Project | Shadow Flicker Analysis



HDR
ONE COMPANY | Many Solutions

Shadow Flicker Model Result
FIGURE 2 of 2
Tule Wind, LLC | Tule Wind Project | Shadow Flicker Analysis

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2.9 WATER RESOURCES

Summary of Issues Raised

Table 2-9 provides a list of recurring comments related to water resources and addressed by common responses.

Table 2-9 Common Water Resources Response Topics

Common Response/Issue	Origin of Comment
WR1: Water demand and resources for construction	A5 – U.S. Environmental Protection Agency (Comment A5-14) B8 – County of San Diego (Comments B8-2, B8-4, B8-15 (Attachment A), B8-16) D28 – Boulevard Planning Group (Comment D28-99) D33 – Law Offices of Stephan Volker (Comment D33-20) F59 – Mary Stewart(Comment F59-2) F65 – Jeffrey and Paula Byrd (Comment F65-13) F66 – Lorrie Ostrander (Comment F66-7) F67 – Mark Ostrander (Comment F67-26) F71 – Mrs. Ken Oppenheimer (Comment F71-13) F81 – Michael and Debbie Moran (Comment F81-13) F86 – Danielle Cook (Comments F86-7, F86-18) F89 – Derik Martin (Comment F89-7) F90 – Jeffrey and Laura McKernan (Comment F90-6) F91 – Crosby Milne (Comment F91-13) F92 – Christopher Noland (Comment F92-6) F109 – Patricia and Elliott Stuart (Comments F109-1, F109-2) H1 – Steve Washer (Comment H1-10)

WR1: Commenters note that water demand and water sources for construction need to be fully documented for both the ECO Substation Project and Tule Wind Project.

Common Responses

WR1: **Water demand and resources for construction for ECO Substation and Tule Wind projects.** EIR/EIS Section D.12, Water Resources, states the potential impacts to water resources due to construction and operation of the Proposed PROJECT, objectively evaluates those potential impacts, provides appropriate mitigation described to lessen those potential impacts, and conservatively evaluates those impacts in light of mitigation in order to make a final impact determination. In assessing impacts to water resources, the EIR/EIS first determines the potential project demand, then assesses available water resources to meet that demand and determines potential impacts to those available water resources. As described in the

EIR/EIS in Section D.12, Water Resources, construction of the ECO Substation Project would require the use of approximately 30 million gallons of water during construction (SDG&E 2009). This water would likely be obtained by purchasing water from a water purveyor and through the use of groundwater. Confirmation has been provided that the Sweetwater Authority in Chula Vista has sufficient water capacity to provide 25 million gallons of water (approximately 83% of the project's construction water needs) to the ECO Substation Project during project construction (Adam 2010). The rate of recharge to the Jacumba Valley groundwater basin is estimated to be greater than the rate of usage, based on studies completed in 1980 and 1994 (DWR 2004), and therefore it appears that groundwater is also available to supply short-term construction needs. While there are no known groundwater wells within a 1-mile radius of the proposed ECO Substation Project, the use of groundwater during construction of the proposed ECO Substation Project could have short-term adverse impacts on groundwater levels. Implementation of Mitigation Measure HYD-3 would mitigate impacts to groundwater within the project area by ensuring that groundwater availability would not be adversely affected.

Mitigation Measure HYD-3 commits both the CPUC for the ECO Substation Project and the BLM for both the ECO Substation and Tule Wind projects to require the applicant to prepare comprehensive documentation that identifies one or more confirmed, reliable water sources that when combined meet the project's full water supply construction needs. Documentation required includes preparation of a groundwater study by a qualified hydrologist to address the existing underlying groundwater/aquifer, existing wells in the proposed well locations, and potential impacts to the aquifer and local wells from the Proposed PROJECT's use of local groundwater. Mitigation Measure HYD-3 also requires that for water that is to be purchased, written documentation must be provided to demonstrate that such providers intend to supply such water to the project. The applicant will provide demonstration of compliance with all applicable laws and regulations and will obtain a County of San Diego Major Use Permit for use of any proposed well located within the County's jurisdiction prior to construction.

Geo-Logic Associates has prepared a memorandum titled, Modified Construction Water Supply Evaluation Tule Wind Project, East San Diego County, California, February 28, 2011 (Geo-Logic Associates 2011a), and a memorandum titled, Response to Comments Submitted by County of San Diego Water Supply Issues, Tule Wind Project, East San Diego County, California, May 27, 2011 (Geo-Logic Associates 2011b), in which the total amount of water required for construction of the Tule Wind Project was clarified as being approximately 19 million gallons.

Construction water for the Tule Wind Project is anticipated to come from existing wells, and will be augmented as needed by supplies from local water purveyors. Subsequent to the release of the Draft EIR/EIS, Geo-Logic Associates prepared a Groundwater Investigation Report for the Tule Wind Farm dated December 2010. The report documents that existing groundwater wells are capable of supplying the project with approximately 130 gallons per minute (gpm), which would be above the anticipated construction peak demand of 124 gpm. Geo-Logic Associates also prepared memoranda in May 2011 that further indicate that the combination of water from wells on Rough Acres Ranch and Thing Valley will be sufficient to supply the Tule Wind Project's construction water needs of approximately 130 gpm (Geo-Logic Associates 2011c, 2011d). Written confirmation has been received that the project has exclusive permission to use the water extracted from groundwater wells on Rough Acres Ranch and in Thing Valley on the Ewiiaapaayp Reservation (Iberdrola Renewables, Inc. 2011a, 2011b). The project has also received written confirmation from the Jacumba Community Service District (Lindenmeyer 2010) and Live Oak Springs Water Company (Najor 2010) of water supplies available to provide construction water to the project. While the Geo-Logic Groundwater Investigation Report, County of San Diego public review comment matrix (Comment B8-15-182), and preliminary indications from local water purveyors provide a basis for concluding that construction water can be provided to the Tule Wind Project without depleting groundwater supplies, Mitigation Measure HYD-3 still applies to the project and would ensure that prior to receiving authorization to construct the Tule Wind Project on BLM lands that the applicant will have met all conditions, as described in Mitigation Measure HYD-3.

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2.10 FIRE AND FUELS MANAGEMENT

Summary of Issues Raised

Table 2-10 provides a list of recurring comments related to fire and fuels management and addressed by common responses.

Table 2-10 Common Fire and Fuels Management Response Topics

Common Response/Issue	Origin of Comment
FIRE1: Fire station staffing and capability	A2 – Congressman Filner (Comment A2-3) A3 – Congressman Duncan Hunter (Comment A3-10) B1 – Law Office of Cynthia L. Eldred (Comments B1-4, B1-5) C5 – Ewiiaapaayp Band of Kumeyaay Indians (Comment C5-32) D19 – FireSafe Council (Comments D19-8, D19-20, D19-21, D19-22, D19-24, D19-25, D19-45, D19-53, D19-55, D19-56) D23 – Pinney, Caldwell, and Pace (Comment D23-4) D24 – Pinney, Caldwell, and Pace (Comment D24-3) D25 – Pinney, Caldwell, and Pace (Comment D25-3) D28 – Boulevard Planning Group (Comments D28-19, D28-40, D28-61, D28-93) E1 – Iberdrola Renewables (Comment E1-42a) F4 – Mary Lu Brandwein (Comment F4-3) F35 – Christopher Dunn (Comment F35-3) F41 – Earl Goodnight (Comment F41-1) F53 – Michael Cuff (Comment F53-7) F65 – Jeffrey and Paula Byrd (Comment F65-5) F66 – Lorrie Ostrander (Comment F66-5, F66-20) F67 – Mark Ostrander (Comment F67-20, F67-25) F71 – Mrs. Ken Oppenheimer (Comment F71-5) F72 – Michele Strand (Comment F72-5) F81 – Michael and Debbie Moran (Comment F81-5) F86 – Danielle Cook (Comment F86-16) F88 – Jon Isaacs (Comment F88-16) F89 – Derik Martin (Comment F89-6) F91 – Crosby Milne (Comment F91-5) F92 – Christopher Noland (Comment F92-7) F97 – Mary Lu Brandwein (Comment F97-10) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comments F99-2, F99-13) F103 – Mark Hass (Comment F103-5) F108 – Steven and Laurie Squillaci (Comment F108-1) H1 – Steve Washer (Comment H1-2) H4 – County of San Diego (Comment H4-6)
FIRE2: Increased fire hazards and likelihood of wildfire/hazard can be reduced with undergrounding project alternative	A2 – Congressman Filner (Comment A2-3) B1 – Law Office of Cynthia L. Eldred (Comments B1-4, B1-5) D19 – FireSafe Council (Comments D19-35, D19-44, D19-50, D19-52, D19-53, D19-58, D19-62, D19-70) D28 – Boulevard Planning Group (Comments D28-19, D28-40, D28-61, D28-93) F35 – Christopher Dunn (Comment F35-3)

Table 2-10 (Continued)

Common Response/Issue	Origin of Comment
	F41 – Earl Goodnight (Comment F41-1) F57 – Robert and Cindy Clark (Comment F57-3) F65 – Jeffrey and Paula Byrd (Comment F65-5) F66 – Lorrie Ostrander (Comment F66-20) F71 – Mrs. Ken Oppenheimer (Comment F71-5) F72 – Michele Strand (Comment F72-5) F81 – Michael and Debbie Moran (Comment F81-5) F91 – Crosby Milne (Comment F91-5) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-13) H1 – Steve Washer (Comment H1-2)
FIRE3: Insurance premium increases or denial of coverage	B1 – Law Office of Cynthia L. Eldred (Comments B1-4, B1-5) D19 – FireSafe Council (Comments D19-27, D19-31, D19-76) D28 – Boulevard Planning Group (Comments D28-19, D28-40, D28-61, D28-93) F9 – Mary Lu Brandwein (Comment F9-3) F35 – Christopher Dunn (Comment F35-4) F65 – Jeffrey and Paula Byrd (Comment F65-5) F66 – Lorrie Ostrander (Comment F66-21) F71 – Mrs. Ken Oppenheimer (Comment F71-5) F72 – Michele Strand (Comment F72-5) F81 – Michael and Debbie Moran (Comment F81-5) F88 – Jon Isaacs (Comment F88-11) F91 – Crosby Milne (Comment F91-5) F97 – Mary Lu Brandwein (Comment F97-10) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-8) H1 – Steve Washer (Comment H1-2)
FIRE4: Location of project in high hazard area with poor access, undefendable assets, and no evacuation plan	A2 – Congressman Filner (Comment A2-3) D28 – Boulevard Planning Group (Comments D28-19, D28-40, D28-61, D28-93) F35 – Christopher Dunn (Comment F35-3) F41 – Earl Goodnight (Comment F41-1) F57 – Robert and Cindy Clark (Comment F57-3) F65 – Jeffrey and Paula Byrd (Comment F65-5) F66 – Lorrie Ostrander (Comment F66-20) F71 – Mrs. Ken Oppenheimer (Comment F71-5) F72 – Michele Strand (Comments F72-5, F72-7) F81 – Michael and Debbie Moran (Comment F81-5) F91 – Crosby Milne (Comment F91-5) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comment F99-13) H1 – Steve Washer (Comment H1-2)
FIRE5: Updated project information supporting reduction of class I impacts to class II impacts for fire	A5 – U.S. Environmental Protection Agency (Comment A5-23) B1 – Law Office of Cynthia L. Eldred (Comments B1-4, B1-5) B8 – County of San Diego, Attachment A (Comment B8-15) B9 – Law Office of Cynthia Eldred (Comment B9-2) C5 – Ewiiaapaayp Band of Kumeyaay Indians (Comments C5-4, C5-11, C5-28, C5-31, C5-37) D19 – FireSafe Council (Comments D19-8, D19-14, D19-16,

Table 2-10 (Continued)

Common Response/Issue	Origin of Comment
	D19-53, D19-56, D19-63) D26 – Adams Broadwell Joseph and Cardozo (Comment D26-17) D28 – Boulevard Planning Group (Comments D28-19, D28-40, D28-61, D28-79, D28-93) D33 – Law Offices of Stephan Volker (Comments D33-19, D33-25) E1 – Iberdrola Renewables (Comments E1-15, E1-37 (Attachment C), E1-42a) E2 – Iberdrola Renewables (Comments E2-2, E2-17, E2-18, E2-20, E2-24) E3 – San Diego Gas & Electric Company, Attachment C (Comment E3-27) E4 – Sempra Generation (Comments E4-3, E4-4) F35 – Christopher Dunn (Comment F35-3) F41 – Earl Goodnight (Comment F41-1) F53 – Michael Cuff (Comment F53-7) F57 – Robert and Cindy Clark (Comment F57-3) F65 – Jeffrey and Paula Byrd (Comment F65-5) F66 – Lorrie Ostrander (Comment F66-5) F67 – Mark Ostrander (Comment F67-25) F71 – Mrs. Ken Oppenheimer (Comment F71-5) F72 – Michele Strand (Comment F72-5) F73 – Charles and Laurie Baker (Comment F73-29) F81 – Michael and Debbie Moran (Comment F81-5) F88 – Jon Isaacs (Comment F88-10) F89 – Derik Martin (Comment F89-6) F91 – Crosby Milne (Comment F91-5) F92 – Christopher Noland (Comment F92-7) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comments F99-2, F99-13) F103 – Mark Hass (Comment F103-5) H1 – Steve Washer (Comment H1-2) H4 – County of San Diego (Comments H4-2, H4-5, H4-6)
FIRE6: Clarification of Mitigation Measure FF-6, FireSafe Council Funding	A2 – Congressman Filner (Comments A2-3, A2-6, A3-10) B9 – Law Office of Cynthia Eldred (Comment B9-8) D19 – FireSafe Council (Comments D19-20, D19-54, D19-68) D23 – Pinney, Caldwell, and Pace (Comment D23-4) D24 – Pinney, Caldwell, and Pace (Comment D24-3) D25 – Pinney, Caldwell, and Pace (Comment D25-3) D28 – Boulevard Planning Group (Comments D28-19, D28-40, D28-61, D28-93) E4 – Sempra Energy (Comment E4-4) F4 – Mary Lu Brandwein (Comment F4-3) F11 – Ginger Bonamo (Comment F11-2) F57 – Robert and Cindy Clark (Comment F57-3) F67 – Mark Ostrander (Comment F67-25) F86 – Danielle Cook (Comments F86-16, F86-23) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comments F99-2, F99-13) F108 – Steven and Laurie Squillaci (Comment F108-1)

FIRE1: Many commenters referred to the understaffed and underequipped local fire stations. The letters concurred that the stations are not manned 24/7 and therefore could result in a high-risk situation with the addition of the project. These comments also commonly indicated a reduction in firefighting capability due to the Proposed PROJECT's energized infrastructure.

FIRE2: Many of the commenters noted that the Proposed PROJECT should be denied due to the classification of some of the fire impacts as Class I (significant and unavoidable under CEQA and adverse and unmitigable under NEPA) in the EIR/EIS. Some of these commenters also indicated that the ignition sources associated with the Proposed PROJECT'S Class I impacts could be reduced by undergrounding the transmission lines.

FIRE3: Another major concern expressed by commenters was associated with homeowner's insurance premium increases or decline of coverage altogether as a result of the Proposed PROJECT.

FIRE4: Several commenters expressed concern over the project's location in a high-risk area, towns and assets downwind of projects being undefendable, poor access in the area that could be made worse during an emergency, and lack of evacuation planning for the existing communities and residents.

FIRE5: Comment letters from project proponents tended to focus on: technological solutions that are being provided (many within the approved Fire Protection Plan (FPP) for Tule) that will mitigate ignition risks; new information that supports the project; inaccuracy (and overstatement) of wind turbine fire occurrences within the Draft EIR/EIS; and their reasons to reduce fire impacts from Class I (significant and unavoidable under CEQA and adverse and unmitigable under NEPA) to Class II (significant but mitigated under CEQA and adverse but mitigated under NEPA).

FIRE6: Several commenters indicated that funding for inspectors to enforce the defensible space rules/weed abatement codes, as well as other fire safety code issues, will be provided through a development agreement with San Diego County Fire Authority (SDCFA) and that FireSafe Council funding designated in Mitigation Measure FF-6 would not be necessary. Several other commenters noted that FireSafe Council funding was vital to fire safety.

Common Responses

FIRE1: **Fire Station Staffing and Capability**. The firefighting manpower issue that currently exists in southeast San Diego County due to the volunteer and reserve status of many of the rural fire stations will be greatly enhanced with approval of the Proposed PROJECT. Rural areas rarely have full-time, career fire stations due to lack of funding for areas that include low populations and widespread assets. Further, San Diego Rural Fire Protection District (SDRFPD), SDCFA, nor CAL FIRE have indicated the need for a new fire station in the project area, with or without project implementation. However, they have indicated that staffing and apparatus would need to be improved with project approval in order to provide adequate fire protection. The primary mitigation measure that focuses on fire department staffing is Mitigation Measure FF-3, as detailed in Section D.15.3.3, Direct and Indirect Effects, and Table D.15-8, Mitigation Monitoring, Compliance, and Reporting–ECO Substation, Tule Wind, and ESJ Gen-Tie Projects–Fire and Fuels Management, in the EIR/EIS. This mitigation measure indicates that project applicants would provide assistance to the local firefighting agencies and that . assistance from project applicants would provide ongoing monies available for equipment, apparatus, and staffing in the local fire stations. The result will be full-time staffing availability to augment volunteers and reserves and improved capabilities, mitigating increased number of calls and demand for service, an improved condition from current volunteer and reserve staffing, which has been somewhat inconsistent and vulnerable to individual schedule conflicts.

Firefighting capability can be reduced by the presence of electrically charged infrastructure. However, the extent to which firefighters are trained to respond to fires in and around electrical components has a significant impact on the capability reduction, and focused training can improve firefighter ability to respond around electrically charged facilities to a very efficient level. The Proposed PROJECT FPPs and the EIR/EIS include various project design features and applicant proposed measures (APMs), as well as mitigation measures that would provide focused training for local fire fighters. In particular, APM TULE-PDF-8 in Table B-12, Tule Wind Project Applicant Proposed Measures requires a fire and emergency protection services agreement between the project applicant and responding fire authorities (SDRFPD and SDCFA). The fire and emergency protection services agreement provides funding for training and equipment necessary to effectively respond around energized transmission facilities, thus reducing the potential for effects on fire fighting. The funding would also provide for a full-time and four part-time code inspectors. This resource would improve the defensibility of existing structures by

improving defensible space, the areas within approximately 100 feet of structures that by law, is required to include reduced fuels.

In addition, subsequent to the publication date of the Draft EIR/EIS, CAL FIRE's tactical air command, the agency that would provide aerial firefighting, indicated that the project would not have a significant effect on their ability to conduct aerial operations. This determination is based on a number of factors, including the existence of aerial infrastructure that currently exists and is co-located with many of the proposed infrastructure, the height of typical water/fire retardant drops above the height of the towers and turbines, and low likelihood of needing to provide aerial attack along with other options for aerial attack near the Proposed PROJECT. Based on this post-Draft EIR/EIS available information provided by the agency that would operate in the area, Section D.15.3.3 of the Draft EIR/EIS overestimated the potential environmental impacts the facilities would have on aerial firefighting capability and the potential impacts were actually reduced.

Comments related to the lack of availability of aerial attack apparatus on days with multiple large fire events are noted and will be included in the administrative record. It should be noted that CAL FIRE, the U.S. Forest Service, SDRFPD, San Diego Gas & Electric (SDG&E), City of San Diego, U.S. military, and others maintain aerial attack resources and it is unlikely that all available aerial resources would be committed at distant locations at the same time. Therefore, adequate air attack resources are expected to be available when needed in southeast San Diego County.

FIRE2: Increased Fire Hazards and Likelihood of Wildfire/Hazard Can Be Reduced with Undergrounding Project Alternative. Section D.15, Fire and Fuels Management, of the EIR/EIS addresses the potential increase in fires with development of the Proposed PROJECT. The Draft EIR/EIS indicated Class I impacts for two of the impact categories (presence of the facility would increase the probability of a wildfire (Impact FF-2) and presence of the facility would affect firefighting (Impact FF-3)). Those findings were based on initial Proposed PROJECT features, APMs, and mitigating measures. Subsequent analysis and focused mitigation measures in the FPPs have resulted in a reduced impact classification for these Class I impacts for the Tule Wind and ESJ Gen-Tie Projects. Refer to common response FIRE5 and information below for further details.

With regard to undergrounding transmission lines, it is logical to assume that undergrounding the lower voltage lines would reduce the potential risk associated with these typically lower height transmission lines. The EIR/EIS indicates several

alternatives to the Proposed PROJECT and some of them would underground certain transmission lines. Others would not be undergrounded due to existing lines, towers, and infrastructure that will be co-located. Fuel management activities that are required by the Proposed PROJECT mitigation measures (Section D.15.3.3 and Table D.15-8 of the EIR/EIS) will minimize the likelihood that vegetation grows near these aboveground transmission lines. Assistance provided by Mitigation Measure FF-3 will enable SDCFA to staff a full-time inspector in the area. This inspector will be able to enforce vegetation management throughout the communities, including the transmission line right-of-ways. Thus, the likelihood of ignition will be reduced and the likelihood of fire spread from an ignition will be even lower. Based on those results, the impact level for Impacts FF-2 and FF-3 are reduced to Class II, mitigated to below significant under CEQA and adverse but mitigated under NEPA for the Tule Wind and ESJ Gen-Tie components of the Proposed PROJECT (refer to common response FIRE5 for additional details). However, because final approval of SDG&E's Fire Protection Plan (Mitigation Measure FF-4) has yet to be received and assistance to SDRFPD and SDCFA in supporting fire code specialist positions (Mitigation Measure FF-3) has yet to be provided by SDG&E to SDRFPD and SDCFA, mitigation effectiveness for the ECO Substation project is not known and therefore, Impacts FF-2 and FF-3 are considered unavoidable (Class I) for purposes of the analysis conducted in the EIR/EIS.

FIRE3: **Insurance Premium Increases or Denial of Coverage.** This comment is noted. It is unclear whether some or all insurance companies would raise rates or discontinue coverage in the project area if the Proposed PROJECT is built, as there was no specific evidence provided in the comments. As described in Section D.15 of the EIR/EIS, each project applicant will have an FPP for their project that provides for additional fire protection and prevention measures, as well as increased firefighting capability in the project area that will be realized through EIR/EIS mitigation measures, specifically Mitigation Measure FF-3, Provide Assistance to San Diego Rural Fire Protection District and San Diego County Fire Authority. Moreover, as discussed under common response FIRE2, the mitigation proved sufficient enough to actually decrease the potential environmental impacts of the Tule Wind and ESJ Gen-Tie Project to below a level of significance under CEQA and adverse but mitigated under NEPA. Should insurance companies actually raise rates or decline coverage for existing and future homeowners, the state, county, and local fire agencies and decision makers/policy planners could present the detailed FPPs prepared for each project and the robust mitigation measures that will be implemented to the insurance agencies. They could work with the insurance agencies and project applicants to demonstrate fire protection provided through these measures rectify the situation

based on the additional fire protection and prevention measures and increased firefighting capability that would be provided throughout the area with the project's construction. This process would be similar to what occurred following the 2003 Cedar fire when insurance companies began cautious reviews and many premium increases and denials of coverage were experienced. Fire agencies presented the new building codes and fire codes, which result in less risk of structural damage and loss, thus resulting in the ability for coverage to continue.

FIRE4: Location of Project in High Hazard Area with Poor Access, Undefendable Assets, and No Evacuation Plan. EIR/EIS Section D.15, Fire and Fuels Management, details the fire environment of the area and documents that it is a very high fire severity zone and is within one of several wildfire corridors designated by SDCFA. Accessways for existing residences are an important component of safe evacuation within any fire hazard zone. As described in Section D.15.3.3 and Table D.15-8, Direct and Indirect Effects of the EIR/EIS, on extreme fire weather days (Red Flag Warnings), project construction, maintenance, and operation restrictions would be in place and enforced, reducing any potential effect on the roadways that residents rely on for evacuation. Regardless of the Proposed PROJECT's approval, residents of the area, like any area with a wildland–urban interface, should formulate personal evacuation plans in addition to a local FireSafe Council-coordinated community-wide evacuation plan. Mitigation Measure FF-6 provides for Proposed PROJECT funding to formulate a community wildfire protection plan and evacuation plan (see common response FIRE6). Measures providing mitigation for Red Flag Warning weather and ongoing maintenance and operations are addressed in Mitigation Measures FF-1, FF-2, and FF-4 of the EIR/EIS (Table D.15-8, Mitigation Monitoring, Compliance, and Reporting–ECO Substation, Tule Wind, and ESJ Gen-Tie Projects–Fire and Fuels Management).

FIRE5: Updated Project Information Supporting Reduction of Class I Impacts to Class II Impacts for Fire. Based on newly provided information (following completion of the December 2010 Draft EIR/EIS), as well as the development agreements entered into between the Tule Wind and ESJ Gen-Tie project applicants and both the SDRFPD and SDCFA (ESJ has committed in writing to this agreement on a fair-share basis), and in light of both fire agencies concluding that impacts are mitigated to below levels of significance based on the measures provided in the FPP and through the increased level of inspection and capability offered by the development agreements for the Tule Wind and ESJ Gen-Tie Projects, the significance level for Impacts FF-2 and FF-3 associated with the Tule Wind and ESJ Gen-Tie Projcts are reduced from Class I to Class II (mitigated to below significant under CEQA and

adverse but mitigated under NEPA) in Section D.15.3.3 of the Final EIR/EIS. Please refer to comment letter B9 (from the Law Office of Cynthia L. Eldred on behalf of the SDRFPD) and comment E1-37a (Attachment D.15.1 - SDRFPD to Patrick Brown, County of San Diego (November 3, 2010) and Attachment D.15.2 - SDCFA to Patrick Brown (February 28, 2011)). It should be noted that Impacts FF-1 and FF-4 were considered Class II in the Draft EIR/EIS and remain Class II in the Final EIR/EIS. Because final approval of SDG&E's Fire Protection Plan (Mitigation Measure FF-4) has yet to be received and assistance to SDRFPD and SDCFA in supporting fire code specialist positions (Mitigation Measure FF-3) has yet to be provided by SDG&E to SDRFPD and SDCFA, mitigation effectiveness for the ECO Substation Project is not known and, therefore, Impacts FF-2 and FF-3 are considered significant and unavoidable (Class I) for purposes of the analysis conducted in the EIR/EIS.

These changes to the impact classifications in the EIR/EIS do not raise important new issues about significant effects on the environment. Such changes are insignificant as the term is used in Section 15088.5(b) of the CEQA Guidelines, and under NEPA do not result in new significant circumstances or information relevant to environmental concerns, or require analysis of a new alternative (40 CFR 1502.9(c)(1)(ii)).

Reasons for the impact classification reduction to Class II for the specified projects and impact categories are related to the multi-layered system of fire prevention and protection that will be provided by the Tule Wind and ESJ Gen-Tie Projects. In particular, the various ignition sources related to these projects, from construction equipment and activities to wind turbines and transmission lines through ongoing maintenance activities, are provided preventative measures. In addition, and most importantly, the improved firefighting response that would be possible with the funding provided by Mitigation Measure FF-3 (and APM Tule-PDF-8 provided in Section B.4.4, Tule Wind Project Application Proposed Measures, of the EIR/EIS) provides for annual funds for fire mitigation monitoring, which will be used by SDRFPD and SDCFA to provide for improved fire staffing, equipment, apparatus, and training. The result is a stronger and more capable local firefighting resource.

The Tule Wind Project is considered a significant potential ignition source based on wildfire risk in the project area (wildfire corridor, extreme weather, 16,000 assets at risk, fire history), as well as the documented wind turbine failure accounts. Although not specifically tracked by California agencies, there are occurrences of wind turbine fires (up to 1.3 per year or more in California) and worldwide. One account documented 116 wind turbine fires since 2003 (CWIF 2011). Additionally, technologies being relied upon

for suppression of nacelle fires is unproven in this particular use and the inclusion of this technology in wind turbine nacelles is in its infancy.

However, SDRFPD and SDCFA, primary responders, and fire authorities having jurisdiction, provided letters indicating that potential impacts associated with the Tule Wind Project will be mitigated to less than significant with implementation of the proposed mitigation measures. Additional measures provided for firefighting resource improvements and off-site mitigations proposed for the project in the Tule FPP would assist firefighter response and structure defensibility.

FIRE6: Clarification of Mitigation Measure FF-6, FireSafe Council Funding. Mitigation Measure FF-6 has been clarified in Section D.15.3.3 of the Final EIR/EIS. The development agreement between the Tule Wind, LLC and ESJ U.S. Transmission, LLC and SDCFA (see Mitigation Measure FF-3) provides for inspectors to enforce weed abatement and fire safety code issues. SDG&E will be required at a minimum to provide a fair share contribution for one SDCFA Fire Code Specialist II position to enforce existing fire code requirements, including but not limited to implementing required fuel management requirements (e.g., defensible space), in priority areas to be identified by the SDCFA for the life of the project. In addition, the applicants are to provide funding to allow SDCFA to employ up to four volunteer/reserve firefighters as part-time code inspectors on a stipend basis for up to 90 days per year for the life of the project. The defensible space that results from this County Fire Authority funding and code inspection effort (Mitigation Measure FF-3) was the primary goal for Mitigation Measure FF-6,however, Mitigation Measure FF-6 remains viable and will remain in place with a clarified focus of coordinating a community wildfire protection plan (CWPP) and evacuation plan. Funding for the Boulevard/Jacumba/La Posta FireSafe Council will enable this newly formed organization a means to proactively complete these plans, provisions for applying for grant funding, and ultimately, for implementing fuel reduction and evacuation plans. Funding will be a lump sum, one-time amount, with project applicants providing a fair share of CWPP and Evacuation Plan preparation.

As a result of information provided after publication of the Draft EIR/EIS in the FPPs and in correspondence from fire agencies (comment E1-37a, Attachments D15.1 and D15.2) regarding fire hazards, revisions have been made to the Final EIR/EIS text in Section D.15 to further clarify text for the Tule Wind and ESJ Gen-Tie projects. These revisions to the EIR/EIS are presented in ~~strikeout~~-underline format in the Final EIR/EIS. No new significant environmental impacts are identified as a result of revisions made to the EIR/EIS. Therefore, the CPUC as lead CEQA agency in consideration of the ECO Substation Project and BLM as lead NEPA agency in

consideration of both the ECO Substation and Tule Wind projects have concluded that the environmental issues addressed in the EIR/EIS have been fully analyzed in accordance with CEQA and NEPA. The EIR/EIS provides all pertinent information necessary to allow for meaningful public and agency review.

New significant information or circumstances is neither required nor is it proposed to be added to the EIR/EIS and recirculation of the document pursuant to CEQA Guidelines, Section 15088.5, is not warranted.

According to Section 5.3 of the BLM's NEPA Handbook, supplementing the EIS is not required as none of the following circumstances apply:

1. When substantial changes to the proposed action are made and are relevant to environmental concerns (40 CFR 1502.9(c)(1)(i));

2. When a new alternative is added that is outside the spectrum of alternatives already analyzed (see Question 29b, CEQ Forty Most Asked Questions Concerning CEQ's NEPA Regulation, March 23, 1981); and

3. When there are new significant circumstances or information relevant to environmental concerns and have bearing on the proposed action or its effects (40 CFR 1502.9(c)(1)(ii)).

References Cited

CWIF (Caithness Windfarm Information Forum). 2011. "Summary of Wind Turbine Accident Data to 31st March 2011." Accessed May 20,2011, at: http://www.caithnesswindfarms.co.uk/page4.htm

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2.11 SOCIAL AND ECONOMIC CONDITIONS

Summary of Issues Raised

Table 2-11 provides a list of recurring comments related to social and economic conditions and addressed by common responses.

Table 2-11 Common Social and Economic Conditions Response Topics

Common Response/Issue	Origin of Comment
SOC1: Loss of property value	A2 – Congressman Filner (Comment A2-6) A3 – Congressman Hunter (Comments A3-5, A3-10) D5 – San Diego Renewable Energy Society (Comment D5-9) D6 – San Diego Renewable Energy Society (Comment D6-6) D7 – Backcountry Against Dumps (Comment D7-2) D9 – Rasayana (Comment D9-10) D19 – FireSafe Council (Comment D19-31) D23 – Pinney, Caldwell, and Pace (Comments D23-3, D23-4) D24 – Pinney, Caldwell, and Pace (Comments D24-2, D24-3) D25 – Pinney, Caldwell, and Pace (Comments D25-2, D25-3) D27 – Backcountry Against Dumps (Comment D27-3) D28 – Boulevard Planning Group (Comments D28-29, D28-72, D28-78, D28-85, D28-86, D28-94, D28-108) D33 – Law Offices of Stephan Volker (Comments D33-23, D33-34) F4 – Mary Lu Brandwein (Comment F4-3) F9 – Mary Lu Brandwein (Comment F9-1) F35 – Christopher Dunn (Comment F35-2) F41 – Earl Goodnight (Comment F41-4) F42 – John and Iris Mauris (Comment F42-12) F43 – Robert and Kathryn McCallister (Comment F43-11) F44 – Paul Thompson (Comments F44-7, F44-12) F46 – Howard Cook (Comment F46-30) F47 – Michael Hanna (Comments F47-1, F47-2) F51 – Harry and Tracy Backer (Comment F51-4) F57 – Robert and Cindy Clark (Comment F57-4) F59 – Mary Stewart (Comments F59-5, F59-7) F65 – Jeffrey and Paula Byrd (Comment F65-10) F66 – Lorrie Ostrander (Comment F66-3) F67 – Mark Ostrander (Comments F67-12, F67-14, F67-27, F67-28, F67-29, F67-30, F67-31) F69 – Mary Lu Brandwein (Comment F69-6) F70 – Marie and Scott Morgan (Comments F70-2, F70-3, F70-6) F71 – Mrs. Ken Oppenheimer (Comment F71-10) F72 – Michele Strand (Comment F72-11) F81 – Michael and Debbie Moran (Comment F81-10)

Table 2-11 (Continued)

Common Response/Issue	Origin of Comment
	F86 – Danielle Cook (Comment F86-8) F88 – Jon Isaacs (Comments F88-12, F88-17) F89 – Derik Martin (Comment F89-4) F90 – Jeffrey and Laura McKernan (Comment F90-5) F91 – Crosby Milne (Comment F91-10) F92 – Christopher Noland (Comment F92-5) F97 – Mary Lu Brandwein (Comment F97-9) F99 – Ken, Tammy, Michelle, Kristy, and Sherry Daubach (Comments F99-3, F99-8) F103 – Mark Hass (Comment F103-9) F108 – Steven and Laurie Squillaci (Comment F108-4) H1 – Steve Washer (Comment H1-7)

SOC1: Multiple commenters expressed concern over the loss of property values due to development of the Proposed PROJECT.

COMMON RESPONSES

SOC1: **Loss of property value.** The Draft EIR/EIS does not consider property value in the context of CEQA and the determination of environmental impact because direct social and economic effects, such as project effects on property value, are not considered significant impacts under CEQA Guidelines Section 15131. According to Section 15360 of the CEQA Guidelines, impacts to be analyzed under CEQA must relate to either a direct or an indirect physical change in the environment. Such physical changes in the environment include changes to land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic value or significance. Change in property values are associated with a number of factors, such as supply and demand, general economic conditions, and location of a property.

As part of the NEPA process, the Draft EIR/EIS did evaluate the loss of property values in Section D.16, Impact SOC-3. It was determined, based on literature reviews completed for the Tule Wind Project and property value issues for the Sunrise Powerlink Project (Iberdrola Renewables, Inc. 2010; CPUC and BLM 2008), that there is insufficient evidence to determine the effect on property values from siting the Proposed PROJECT, including high voltage transmission lines and wind turbines.

Several commenters have included additional studies suggesting that wind projects result in decreased property values; however, there is no consensus among these studies pointing to a consistent and quantifiable relationship between wind projects

and property values that can be applied to the Proposed PROJECT. In general, claims of diminished property value through decreased marketability are based on the reported concern about hazards to human health and safety, increased noise, and visual impacts associated with living in proximity to wind energy projects and high voltage transmission lines. These issues are analyzed extensively in Sections D.10, Public Health and Safety, D.8, Noise and Vibration, and D.3, Visual Resources, of the EIR/EIS.

While it is possible that property owners near the project site may have the perception that their homes will diminish in value because of the project, the actual loss of property value and potential effects can only be tested through data from home sales within the impact area and within one or more similar control areas over a few years prior to an awareness of a proposed project. This type of data collection and study is beyond the scope of the EIR/EIS, and is therefore infeasible for the Proposed PROJECT. While it can be ascertained that particular environmental and physical changes can affect property values within an immediate distance of the Proposed PROJECT, at this time, a definitive assessment of any potential impacts to nearby property values is not possible. Determination of the effect of the Proposed PROJECT on property values is highly speculative, and the analysis contained in the Draft EIR/EIS is reflective of this finding.

Disagreement among experts, consultants, or attorneys regarding the material, data, or significance determinations does not mean the EIR/EIS is legally inadequate. It is up to the lead agencies to evaluate the presented material and data and make their own determinations regarding the material's competence and accuracy. Case law clearly establishes the right of the lead agency to accept one expert opinion over another, so long as the decisions are supported by substantive evidence.

References Cited

CPUC and BLM (California Public Utilities Commission and Bureau of Land Management). 2008. *Final Environmental Impact Report/Environmental Impact Statement and Proposed Land Use Amendment: San Diego Gas and Electric Company Application for the Sunrise Powerlink Project*. Agoura Hills, CA: Prepared by Aspen Environmental Group for the CPUC and BLM. October 13, 2008.

Iberdrola Renewables, Inc. 2010. *Applicant's Environmental Document: Tule Wind San Diego County, California*. San Diego, CA: Prepared by HDR Engineering, Inc. September 2010.

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2.12 CLIMATE CHANGE

Summary of Issues Raised

Table 2-12 provides a list of recurring comments related to climate change and addressed by common responses.

Table 2-12 Common Climate Change Response Topics

Common Response/Issue		Origin of Comments
CC1:	Quantification of greenhouse emission reduction achieved	A5 – U.S. Environmental Protection Agency (Comment A5-2) B7 – California State Lands Commission (Comments B7-43, B7-46) D6 – San Diego Renewable Energy Society (Comment D6-11) D28 – Boulevard Planning Group (Comment D28-11) E2 – Iberdrola Renewables (Comment E2-7) E4 – Sempra Generation (Comment E4-2) F97 – Mary Lu Brandwein (Comment F97-6)
CC2:	Need for assessment of effects of climate change on project	A5 – U.S. Environmental Protection Agency (Comments A5-2, A5-22) D28 – Boulevard Planning Group (Comment D28-11) D34 – Natural Resources Defense Council (Comments D34-20, D34-28) F66 – Lorrie Ostrander (Comment F66-8) F97 – Mary Lu Brandwein (Comment F97-6)
CC3:	Exclusivity of renewable energy transmission along lines	D6 – San Diego Renewable Energy Society (Comment D6-11)

CC1: Commenters indicated the need to quantify the greenhouse gas (GHG) emission reductions that would occur as a result of renewable energy offsetting GHG emissions from fossil-fuel electrical generation.

CC2: Commenters indicated the need to assess the effects of climate change on the Proposed PROJECT. Mitigation measures are needed to protect the project from the effects of climate change.

CC3: Commenters indicated the need for assurance that transmission lines, particularly the proposed ESJ Gen-Tie line, transmit renewable energy only. Commenters expressed concerns that the proposed ESJ Gen-Tie transmission line could eventually be used to support nonrenewable energy generation projects in Mexico that would have additional effects in the U.S. (e.g., impacts due to the construction and operation of natural gas-fired power plants in Mexico that use the proposed transmission line to export electricity to the U.S.).

Common Responses

CC1: **Quantification of greenhouse emission reduction achieved.** The Draft EIR/EIS states, "In addition, the project would facilitate interconnection of renewable sources of energy, thereby potentially decreasing overall emissions attributable to electrical generation in California" (see Section D.18.3.3 of the EIR/EIS). The Draft EIR/EIS further states, "if the Tule Wind Project were not built, SDG&E's plans to achieve the state RPS [Renewable Portfolio Standard] goals would be hampered or delayed, which could conflict with the state's plans under the Scoping Plan" (see EIR/EIS Section D.18.7.3; similar statements are made elsewhere in the Draft EIR/EIS with respect to other components of the Proposed PROJECT). Despite the likelihood that the electricity generated and transmitted by the Proposed PROJECT would reduce the dependency on fossil-fuel generated electricity, there is no certainty that electricity generated and transmitted by the Proposed PROJECT would displace any specific amount of electricity generated by a particular existing fossil-fuel power plant. The renewable energy projects would clearly augment existing electricity supplies and provide electricity that could displace the output from other existing power plants, but the EIR/EIS does not speculate the level to which specific sources of fossil-fuel generated electricity would be reduced. Accordingly, while the Proposed PROJECT conceptually would reduce greenhouse gas emissions, the precise amount of this reduction cannot be determined.

CC2: **Need for assessment of effects of climate change on project.** Climate change has and will continue to create numerous changes to the world's and California's environment. Some of these effects are described in Section D.18.1.1 of the Draft EIR/EIS. Some effects of climate change, such as reduced snowpack and rising sea levels, would clearly not impact the Proposed PROJECT. Other effects of climate change, such as increased temperature; precipitation; extreme weather events; and timing, frequency, and behavior of wildfires, are projected to manifest over decades. While there is consensus on the likelihoods of such changes, the predicted magnitude is uncertain and highly variable due to variability of climate change models, projected future levels of greenhouse gases in the atmosphere, and efforts by states and nations to reduce greenhouse gases from current levels. Thus, the project operators may need to evaluate an adaption strategy, if necessary, in the future to address climate change impacts that actually occur and that would jeopardize operation of the project. It is too speculative to evaluate such impacts at this time.

Furthermore, the *Final Statement of Reasons for Regulatory Action* for the SB 97 amendments to CEQA Guidelines discusses the need to identify the impacts of climate change on a project (California Natural Resources Agency 2009, p. 42):

> As revised, section 15126.2 [of the amended CEQA Guidelines] would provide that a lead agency should analyze the effects of bringing development to an area that is susceptible to hazards such as flooding and wildfire, both as such hazards currently exist or may occur in the future. Several limitations apply to the analysis of future hazards, however. For example, such an analysis may not be relevant if the potential hazard would likely occur sometime after the projected life of the project (i.e., if sea-level projections only project changes 50 years in the future, a 5-year project may not be affected by such changes). Additionally, the degree of analysis should correspond to the probability of the potential hazard (CEQA Guidelines, Section 15143, "significant effects should be discussed with emphasis in proportion to their severity and probability of occurrence"). Thus, for example, where there is a great degree of certainty that sea-levels may rise between 3 and 6 feet at a specific location within 30 years, and the project would involve placing a wastewater treatment plant with a 50 year life at 2 feet above current sea level, the potential effects that may result from inundation of that plant should be addressed. On the other extreme, while there may be consensus that temperatures may rise, but the magnitude of the increase is not known with any degree of certainty, effects associated with temperature rise would not need to be examined (CEQA Guidelines, Section 15145, "If, after thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate the discussion of the impact"). Lead agencies are not required to generate their own original research on potential future changes; however, where specific information is currently available, the analysis should address that information (CEQA Guidelines, Section 15144: environmental analysis, "necessarily involves some degree of forecasting. While seeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can").

Several commenters stated that effects of climate change on species of concern, such as the Peninsular bighorn sheep (*Ovis canadensis nelsoni*) and the Quino checkerspot butterfly (*Euphydryas editha quino)*, should be evaluated. The comments are related to the possibility of some species migrating from their current habitat to new habitats

that may be affected by the Proposed PROJECT. Where a species of concern (e.g., Quino checkspot butterfly) would be affected by the Proposed PROJECT, these impacts are evaluated in Section D.2 of the Draft EIR/EIS and, if significant, mitigation measures have been specified. As noted previously, the effects of climate change, including the potential range shifts or migration of species, may not occur for decades. Section D.2 of the Draft EIR/EIS notes that there are several features of a critical habitat that make it suitable for a given species. The potential increase in temperature driving a species to higher elevation or latitude, for example, is but one of these features and not the only one that influences the presence of a species in a particular location. Thus, it would be speculative to assume that species of concern may migrate or have range shifts into the project area and be subjected to concurrent impacts of both climate change and the Proposed PROJECT. Furthermore, the *Final Statement of Reasons for Regulatory Action* for the SB 97 amendments to the CEQA Guidelines states, "Unlike hazards that can be mapped, other issues in the Adaptation Strategy, such as the health risks associated with higher temperatures, are not capable of an analysis that links a project to an ultimate impact. Habitat modification and changes in agriculture and forestry resulting from climate change similarly do not appear to be issues that can be addressed on a project-by-project basis in CEQA documents" (California Natural Resources Agency 2009, p. 103).

While suggested by Commenter A5, the U.S. Environmental Protection Agency, it would be premature to impose mitigation measures to monitor or protect the project from the effects of climate change. The specific impacts of climate change in the project area cannot be determined at this time, and some would not manifest in direct impacts to the project area for many decades. Accordingly, the occurrence of significant impacts and the appropriate mitigation measures cannot be identified at this time.

CC3: **Exclusivity of renewable energy transmission along lines.** The Draft EIR/EIS does not state that all transmission lines would transmit renewable energy only. The ECO Substation project description indicates that "in addition to accommodating the region's planned renewable generation, the project would also provide a second source for the southeastern 69 kV transmission system that avoids the vulnerability of common structure outages, which would increase the reliability of electrical service for Boulevard, Jacumba, and surrounding communities" (Section B of the EIR/EIS). The ECO portion of the project was never intended to transmit only renewable energy, and the project description and objectives are reflective of that. Please refer to common response PD2 regarding importing only renewable energy on the ESJ Gen-Tie Line.

References Cited

California Natural Resources Agency. 2009. Final Statement of Reasons for Regulatory Action – Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. December 2009.

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2.13 CUMULATIVE ANALYSIS

Summary of Issues Raised

Table 2-13 provides a list of recurring comments related to cumulative impacts as a result of the project and addressed by common responses.

Table 2-13 Common Cumulative Impacts Response Topics

Common Response/Issue	Origin of Comment
CUM1: Inclusion in EIR/EIS of projects throughout the southwestern U.S.	A5 – U.S. Environmental Protection Agency (Comment A5-19) B3 – California Department of Fish and Game (Comment B3-36) B5 – California Natural Resources Agency (Comment B5-10) B8 – County of San Diego, Attachment A (Comment B8-15) D21 – Courtney Ann Coyle Attorney at Law (Comments D21-4, D21-5) D26 – Adams Broadwell Joseph and Cardozo (Comments D26-11, D26-12, D26-13, D26-14, D26-15) D28 – Boulevard Planning Group (Comments D28-34, D28-106) D30 – California State Parks (Comment D30-5) D34 – Natural Resources Defense Council (Comments D34-15, D34-21, D34-24) F42 – John and Iris Mauris (Comment F42-4) F43 – Robert and Kathryn McCallister (Comment F43-4) F65 – Jeffrey and Paula Byrd (Comment F65-3) F71 – Mrs. Ken Oppenheimer (Comment F71-3) F72 – Michele Strand (Comment F72-3) F81 – Michael and Debbie Moran (Comment F81-3) F91 – Crosby Milne (Comment F91-3) H1 – Steve Washer (Comment H1-10)

CUM1: Commenters noted that the EIR/EIS should include projects throughout the southwestern United States in its cumulative analysis as well as additional cumulative analysis for the Sunrise Powerlink Project.

COMMON RESPONSES

CUM1: Inclusion in EIR/EIS of projects throughout the southwestern U.S. In consideration of the proposed ECO Substation Project, the CPUC and BLM have evaluated a range of projects to determine whether they are so closely related to the proposed ECO Substation as to be considered connected actions under NEPA and whole of the action under CEQA. The CPUC identified the proposed Tule Wind and ESJ Gen-Tie projects, along with the proposed Campo, Manzanita, and Jordan wind energy projects, for evaluation as components of the Proposed PROJECT to allow the

CPUC and BLM to further consider the broad impacts, mitigation, and consequences of the ECO Substation and Tule Wind projects specifically and the wider project as a whole. The EIR/EIS addresses cumulative impacts (see Section F, Cumulative Impacts), including those associated with the Sunrise Powerlink and other known large-scale energy projects within the study area.

The cumulative analysis in the EIR/EIS was prepared in accordance with both CEQA (14 CCR 15130) and NEPA (40 CFR 1508.7), which requires an analysis of cumulative impacts as part of the evaluation and analysis of potential impacts. As described in Section F.3.1 of the EIR/EIS, the geographic extent for the analysis of cumulative impacts associated with the project includes the vicinity of all reasonably foreseeable cumulative projects and extends throughout southeastern San Diego County and western Imperial County, as shown in Figure F-1 of the EIR/EIS. Table F-2, Cumulative Scenario – Approved and Pending Projects, provides a list of 53 known projects at the time of issuance of the Notice of Preparation and Notice of Intent considered in the cumulative analysis. Given that there is a potential for continually adding possible future projects, a lead agency possesses the authority to set a reasonable cut-off date for such new projects. The CPUC and BLM have set issuance of the Notice of Preparation and Notice of Intent for the EIR/EIS as the cut-off date to determine which projects should be included in the cumulative analysis.

The specific geographic area was evaluated and determined to be sufficient based on the magnitude of the Proposed PROJECT's potential to interact with other potential projects and thus cause potentially cumulative physical environmental impacts. The cumulative study area evaluated any and all projects within a 10-mile radius of the Proposed PROJECT site boundaries. It was determined that this was a reasonable area given the specific project impacts and the surrounding area with little development within the area. The County was also consulted as to additional projects in the area that may be applicable on a cumulative basis.

The CPUC and BLM have determined that consideration of wide-spread industrial-scale energy developments beyond the study area defined in Section F of the EIR/EIS (see Figure F-1, Cumulative Projects Map) throughout the Southern California desert and elsewhere in the southwest, is beyond the scope of the analysis required under CEQA and NEPA in consideration of the proposed ECO Substation and applications to develop the Tule Wind Project on federal lands.