



U.S. Fish and Wildlife Service
Environmental Assessment
Shiloh IV Wind Project Eagle Conservation Plan

Finding of No Significant Impact

Prepared by

Division of Migratory Birds and Habitat
2800 Cottage Way, W-2650
Sacramento, CA 95825
Contact: Heather Beeler, Eagle Permit Coordinator
916-414-6651

June 2014

Table of Contents

I.	Introduction	2
II.	Background.....	2
III.	Alternatives Considered.....	3
IV.	Effects of Implementation.....	6
	Eagles.....	6
	Risk Estimate	6
	Cumulative Effects.....	6
	Sensitive Birds	7
	Cultural Practices	8
	Other Environmental Analysis.....	8
V.	Public Comment.....	8
VI.	Changes made to EA in Response to Comments.....	9
VII.	Eagle Take Permit Criteria.....	9
VIII.	Significance Criteria.....	11
	Sensitive Bird Species.....	14
	Golden Eagles	14
	Climate Change.....	15
	Other Environmental Analysis.....	15
IX.	Final Eagle Conservation Plan.....	17
X.	Conclusions.....	18
XI.	Literature Cited	19

Attachment 1: Final Environmental Assessment, Shiloh IV Wind Project Eagle Conservation Plan

Attachment 2: Response to Comments on draft Environmental Assessment

Attachment 3: Final Eagle Conservation Plan for the Shiloh IV Wind Project

Attachment 4: Shiloh IV Eagle Mitigation ESA Concurrence 5_6_14

I. Introduction

This Finding of No Significant Impact (findings) addresses the issuance of a programmatic eagle take permit pursuant to the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d) and its permitting regulations (50 Code of Federal Regulations [CFR] §22.26) for the operational Shiloh IV Wind Project, located in Solano County, California.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq.) and its implementing regulations (40 CFR §1506.6 and 43 CFR §46.300), we, the U.S. Fish and Wildlife Service prepared an Environmental Assessment (EA) analyzing the impacts on the human environment associated with permit issuance (*Environmental Assessment - Shiloh IV Wind Project Eagle Conservation Plan*) based on the project's Eagle Conservation Plan (ECP) (EA Appendix A), as well as other alternatives. The final EA is incorporated by reference into this Finding of No Significant Impact (Attachment 1). Permit issuance will authorize eagle take that is incidental to otherwise lawful operational activities described in the Shiloh IV ECP.

The EA and ECP detail the impacts of the incidental take on golden eagles and how these impacts will be avoided, minimized, and mitigated. Eagle take permits may be issued only in compliance with the conservation standards of the Eagle Act. This means that to consider permit issuance, we must determine if the take is compatible with the preservation of the golden eagle, defined as “consistent with the goal of stable or increasing breeding populations” (74 FR 46836; September 11, 2009). The EA evaluated a range of reasonable alternatives, based on their ability to meet our purpose and need, and the associated impacts to the human environment.

Upon review of the EA, the Service concludes that a finding of no significant impact is appropriate. Following review and analysis, the Service has chosen to issue a permit for activities under our Selected Alternative which is Alternative 3 of the EA.

II. Background

The EA analyzes the effects of our proposed issuance of a 5-year programmatic eagle take permit on the human environment and evaluates impacts over the 30-year duration of the project. The analysis focuses on golden eagles, but also addresses other elements of the human environment; primarily impacts to sensitive bird species, and whether this action would substantially burden a Tribe's free exercise of its religion. The analysis for other elements of the human environment in the *Final Environmental Assessment for the Shiloh IV Wind Project Habitat Conservation Plan* (HCP FEA) (Service 2012) was incorporated by reference into the EA, as described in chapters 3 and 4.

The Service developed Eagle Conservation Plan Guidance to provide recommendations for the development of ECPs in support of issuance of programmatic eagle take permits for wind facilities. The applicant requested Eagle Act programmatic take coverage for operational activities of the Shiloh IV Wind Project, LLC (Shiloh IV), an affiliate of EDF Renewable Development, Inc. Shiloh IV submitted their application in March 2012 using an Avian Bat Protection Plan (ABPP) as the foundation of their application. At our request, they updated their application package by submitting an ECP in August 2012. With our assistance, Shiloh IV used

the Draft Guidance that was published in the Federal Register on February 18, 2011 (76 FR 9529) to develop their ECP (EA Appendix A). It is the foundation of the applicant's permit application. The revised ECP Guidance was published in May 2013 (78 FR 25758, May 2, 2013). The attached EA used methods presented in the revised guidance to analyze eagle risk, population level cumulative effects and determine how much compensatory mitigation is needed to offset impacts to eagle populations.

Although the Service revised the Eagle Act permit regulations to make longer term eagle take permits available (78 FR 73704, December 9, 2013) the applicant chose not to amend their request at this time. Therefore, this permit will only authorize golden eagle take at Shiloh IV for five years.

III. Alternatives Considered

Introduction

The EA considered alternatives for issuance of a permit to take golden eagles at the Shiloh IV Wind Project. It analyzed the effects of our proposed issuance of a 5-year programmatic eagle take permit on the human environment and evaluates impacts over the 30-year duration of the project. The analysis primarily focused on bald and golden eagles but also addresses other elements of the human environment, including other potential avian, noise, visual, and cultural effects.

As referenced in the CEQ NEPA regulations regarding the contents of an EA (40 CFR 1508.9[b]), NEPA Section 102(2)(E) requires Federal agencies to develop, study, and briefly describe alternatives to any proposed action with the potential to result in unresolved resource conflicts.

The EA evaluated a No Action Alternative and three action alternatives. The following is a brief description of the alternatives considered. For a complete description, as well as alternatives that were considered but not evaluated further, see EA Section 2.3.

Offsetting Compensatory Mitigation

Under all action alternatives, the applicant will provide compensatory mitigation for eagles by retrofitting electric distribution poles. The intent is to minimize the potential for electrocutions in this area and ensure that the effects of take caused by Shiloh IV are offset. As shown in EA Table 2-1 below, 75 poles are proposed to be retrofitted under Alternative 2, 133 poles under Alternative 3, and 101 poles under Alternative 4. The number of retrofits was derived using our Resource Equivalency Analysis (REA) (Service 2013, Appendix D), based on the anticipated annual eagle fatalities. The lower number of pole retrofits under Alternative 2 was based on the applicant's estimate of annual mortality of 0.5 eagle per year.

We worked with a utility company to identify high-risk utility poles appropriate for eagle compensatory mitigation. We selected the Shiloh IV mitigation site based on an area identified as having higher than average electrocution rates and high densities of wintering and breeding eagles. The retrofits are not duplicative of the utility company's other obligations to retrofit poles within its system.

Alternative 1: No Action

Under the No-Action Alternative, we would take no action or would deny the permit application and would not issue an eagle take permit. The wind project would continue to operate without a take permit being issued, and the applicant would be subject to law enforcement action if unauthorized take of golden eagles occurred during operations. We consider this alternative because NEPA requires evaluation of a No-Action Alternative, and either issuing or not issuing the permit are the potential responses to the permit application. Under the No-Action Alternative, we would deny the permit application because it fails to meet one or more of several issuing criteria under 50 CFR 22.26 as described in EA section 1.5.2, or because we have determined that the risk to eagles is so low that a take permit is unnecessary.

Alternative 2: Issue 5-Year Permit Based On Applicant's Proposed Eagle Conservation Plan

Under this alternative, we would issue a 5-year permit to take up to five golden eagles with associated conditions, as allowed by regulation. The permit would incorporate all conservation commitments described in the ECP (EA Appendix A) and the Bird and Bat Conservation Strategy (BBCS) (EA Appendix B). The project would entail the operation of 50 turbines for 30 years and the implementation of experimental advanced conservation practices (ACPs) outlined in the ECP. In addition, the applicant would provide compensatory mitigation to offset anticipated take by retrofitting 75 power poles in Year 1 of permit issuance, and would provide for additional power pole retrofits as eagle take occurs.

Alternative 3: Issue 5-Year Permit Based On Applicant's Proposed Eagle Conservation Plan with Additional Mitigation and Monitoring Measures

Under this alternative, we would issue a 5-year permit to take up to five golden eagles with associated conditions, as allowed by regulation. The permit would incorporate all conservation commitments described in the ECP (EA Appendix A) and the BBCS (EA Appendix B) as well as additional mitigation and fatality monitoring. The additional mitigation involves retrofitting a total of 133 power poles in Year 1 of permit issuance. The additional mortality monitoring consists of monitoring all turbines monthly for the first year to provide assurances that any potential eagle take is detected. Subsequent annual monitoring will be determined in coordination between the Service and the applicant based on the results of the first year's intensive mortality monitoring.

Alternative 4: Issue 5-Year Permit Based On Applicant's Proposed Eagle Conservation Plan with Seasonal Restrictions

Under this alternative, we would issue a 5-year permit to take up to four golden eagles with associated conditions, as allowed by regulation. The permit would incorporate all conservation commitments described in the ECP (EA Appendix A) and the BBCS (EA Appendix B), but would also stipulate that operational restrictions be implemented to curtail individual turbines to further avoid and minimize potential take of eagles. Under this alternative, turbines would be curtailed during daylight hours for 2 months (June and July), which accounts for the reduction in anticipated take from five to four golden eagles under this alternative. Mitigation involves retrofitting a total of 101 power poles in Year 1 of permit issuance.

Key Components of Alternatives

A summary of the key components of the alternatives is provided in Table 2-1 of the EA and also presented below. The primary elements of each alternative are predicted take, mortality monitoring, compensatory mitigation, population effects, and ACP implementation.

EA Table 2-1. Summary of Key Components of Alternatives

	Alternative 1 – No Action	Alternative 2 – Issue 5-Year Permit based on Applicant’s ECP	Alternative 3 – Issue 5-Year Permit based on Applicant’s ECP with Additional Mitigation and Monitoring	Alternative 4 – Issue 5- Year Permit based on ECP with Reduced Operations
Predicted Take:				
Annual	0.89	0.89	0.89	0.68
5 Years	5	5	5	4
30 Years	27	6–15 ^a	6–15 ^a	5–15 ^a
Mortality Monitoring:				
# of Years	3	3+	3+	3+
Turbines Searched	50%	50%	100%	100%
Compensatory Mitigation	None	75 poles ^b	133 poles ^c	101 poles ^c
Population Effects	Yes	No	No	No
ACP Implementation	No	Yes	Yes	Yes

a Experimental ACPs will be implemented to reduce risk and fatality estimates; this range represents potential fatalities for the remainder of the operational duration

b Additional poles would be completed as necessary as take occurs.

c If take is higher than predicted additional pole retrofits may be needed.

Evaluation of Alternatives

The EA evaluated potential impacts that could result from the issuance of the programmatic eagle take permit based on the Shiloh IV ECP or alternatives to the proposed ECP. It was developed to assist us in evaluating effects on the human environment and in assessing the significance of the impacts that could result from the alternatives. “Significance” under NEPA is defined by regulation at 40 CFR 1508.27, and requires short-term and long-term consideration of both the context of a proposal and its intensity. As required by NEPA, all alternatives must undergo an equal level of analysis, and the final proposal may include all or some components of a single alternative, or it may include a combination of components from more than one alternative.

Selected Alternative

The Selected Alternative for our issuance of a programmatic eagle take permit to Shiloh IV is Alternative 3 of the EA.

IV. Effects of Implementation

As described in the EA, implementing the Selected Alternative would have no significant impacts on any of the environmental resources identified in the EA. Our Selected Alternative is consistent with our purpose and need as stated in the EA. A brief summary of the impact analysis, mitigation measures, and conclusions in the EA follows.

Eagles

In determining the significance of effects of each alternative on eagles, we screened each alternative against the Eagle Act's Permit Issuance Criteria (EA Section 1.5.2) using recently developed quantitative tools available in our ECP Guidance (Service 2013). We also used some qualitative analysis based on our knowledge of the Montezuma Hills Wind Resource Area (WRA), attendance at local technical meetings, discussions with other local experts, and studies of local eagle populations.

The Service has interpreted the conservation standard of the Eagle Act to require maintenance of stable or increasing breeding populations of eagles (74 FR 46836; September 11, 2009). The Service independently evaluated the potential impacts from project operations along with the implications for direct, indirect, and cumulative effects. We developed conservative risk estimates for the project and our cumulative effects analysis to be protective of the species.

Risk Estimate

In the ECP Guidance (Service 2013), we provided a mathematical model that estimates fatality risk at wind project sites. The model relies on a logical assumption that there is a positive relationship between the number of minutes eagles are present in the air near turbines, the number of turbines, and the risk of collisions by eagles. The results of the model estimate the possible number of fatalities per year at the project site (see EA Appendix C for details). Under the Selected Alternative, we estimate that up to 5 eagles will be taken over the duration of the 5-year permit. The predicted take of golden eagles conservatively estimates impacts on eagles. We have purposefully used these estimates to be protective of eagles and ensure that take authorization is not over-allocated across the population.

Cumulative Effects

To evaluate cumulative impacts for the local-area population, we followed the guidance provided in Appendix F of the Eagle Conservation Plan Guidance (Service 2013). Utilizing this process, we estimated annual golden eagle fatality rates within a 140-mile radius around the Shiloh IV Wind Project area (EA Figure 4-1). This analysis included available data from other wind projects within the Montezuma Hills WRA, the Altamont Pass WRA, and the Tehachapi WRA. Although no data were available for the Pacheco Pass WRA, we estimated annual mortality based on information from other wind energy facilities in similar habitat types. Our analysis also

included utility caused mortality data from PG&E (see EA Section 4.21 for details). Consequently, we estimate that 12.3 percent of the local area population is taken annually.

We developed this conservative estimate of population-level effects to be protective of the species. Our mortality estimates for the Montezuma Hills WRA are higher than mortality rates that have been reported in Montezuma Hills WRA project-specific postconstruction monitoring studies. This conservative approach was adopted to ensure that undocumented fatalities are addressed. Based on our assessment, fatalities at the Altamont Pass WRA have the largest overall impact on the eagle population.

As discussed in the EA (see Section 4.2.2.6), the Service's objective is to manage the species by authorizing take at a level that is less than 5 percent of the local-area population. However, in areas such as this, where the annual ongoing fatality of eagles is well above this benchmark, our goals will be focused on additional mitigation and overall reduction of ongoing eagle mortality. The Service will continue to encourage measures to reduce mortality from the sources identified in the EA, including the Shiloh IV project. The ACPs outlined in the applicant's ECP are intended to minimize ongoing take at the facility.

Conclusion

While the incremental effect of the project is small and the impact intensity is lower than that of other WRAs in the local area, the project would contribute to local and possibly regional adverse effects on the species. We anticipate that, by issuing a permit, the Service will ensure that take of eagles will be offset through implementation of ACPs and the retrofitting of additional utility power poles at levels above that currently undertaken by the utility company. Together, these activities will help accomplish our population goal for eagles. In addition, by implementing the ACPs, Shiloh IV will contribute information on the effectiveness of experimental ACPs, with the potential to support technological innovations that could minimize avian impacts associated with wind turbine operations.

Because the applicant would offset take through compensatory mitigation, and may reduce the amount of actual take (compared with our take estimates for the project) through the implementation of experimental ACPs, we have determined there would be no significant adverse cumulative effects to golden eagle populations contributed by issuance of a programmatic eagle take permit to Shiloh IV.

Sensitive Birds

Two Birds of Conservation Concern (BCC) (Service 2008) known or likely to occur in the Montezuma Hills WRA, red-tailed hawk and American kestrel, were identified as bird species of interest for the purpose of this analysis.

We quantified population-level effects for these two BCC species for which turbine-related mortality has been documented in the Montezuma Hills WRA. We also analyzed population-level impacts on red-tailed hawks and American kestrels because of known high mortality rates for these species in the Montezuma Hills WRA and the nearby Altamont Pass WRA (see EA Table 4-5). With implementation of the environmental commitments in the HCP FEA, the BBCS Conservation Measures, and the additional commitments set forth in the ECP, we have

determined that the issuance of an eagle take permit to Shiloh IV would have no significant adverse effects on biological resources, including these bird species of interest.

Cultural Practices

To address the effects golden eagle take on cultural practices, we assessed whether the proposed action or alternatives would substantially burden a Tribe's free exercise of its religion.

As a first step in our Tribal Trust Coordination process in consideration of this eagle take permit, we requested a list of potentially affected tribes from the California Native American Heritage Commission (NAHC) on July 13, 2012. The NAHC responded on August 17, 2012, with a list of potentially affected tribes. We then contacted in writing each of the seven representatives of the Wintun Nation to solicit comments on the proposed action. This list was updated in May 2013 to include all tribes identified by the Bureau of Indian Affairs within 140 miles of the project area. In July 2013, we sent all tribes within 140 miles of the project area a comment solicitation, initiating a government-to-government consultation. Comments were also encouraged during the 45-day comment period on the DEA.

We followed up with phone calls to each tribe in November 2013 and early December 2013 and emails with more information as requested. In addition, on January 29, 2014, we hosted a workshop at the Environmental Protection Agency's Regional Tribal Organization Committee (RTOC) meeting in San Francisco to discuss the eagle permit regulations and our consideration of the Shiloh IV programmatic permit.

We received 3 comment letters on the DEA from tribes. The letters and our responses to comments are presented in Attachment 2.

Eagles and their feathers are revered and considered sacred in many Native American traditions. Issuance of an eagle take permit to the operational Shiloh IV project, including the take of eagles anticipated under the permit, is not expected to interfere with cultural practices and ceremonies related to eagles, or to affect the ability to utilize eagle feathers. We make this determination because Shiloh IV is an operational wind facility. Currently, eagle carcasses that are found are sent to our National Eagle Repository and, if in good condition, are made available for these practices. Under our Selected Alternative, requirements under an eagle take permit may increase eagle carcass detection rates and ensure carcasses are sent to the repository in a timely manner, while feathers and parts are in good condition. Therefore, we do not anticipate any significant adverse effect on cultural practices.

Other Environmental Analysis

As summarized in Section 4.2.3 of the EA, issuance of an eagle take permit to Shiloh IV would have no significant adverse effects on other environmental resources or values.

V. Public Comment

The Service published a Notice of Availability of the DEA in the Federal Register on September 27, 2013, opening a 45-day comment period. Because the comment period and EA availability

was interrupted by the lapse in Federal appropriations and partial government shutdown, the comment period was extended through November 29, 2013, as announced in the October 30, 2013, Federal Register publication for “New Deadlines for Public Comment on Draft Environmental Documents.”

We received 32 submissions; 1 from the U.S. Environmental Protection Agency, 3 from tribes, 6 from nongovernmental organizations (NGOs), and 22 from the public. Three NGO comment letters combined comments from multiple organizations, the first letter representing 2 environmental groups, the second representing 6 environmental groups, and the third representing 2 wind industry associations. Our responses to the comments on the draft EA are presented in Attachment 2.

VI. Changes made to EA in Response to Comments

We made minor changes to the final EA based on comments received. Changes included:

- clarifying that the technical advisory committee (TAC) was intended to include only Service staff as overseers of the permit and we removed the “TAC” terminology to avoid further confusion with other technical advisory committees,
- adding information on the electric utility pole retrofit process for mitigation,
- adding Appendix D to the final EA to provide information on the Resource Equivalency Analysis (REA) process used to calculate mitigation, and
- adding information on climate change effects to eagle populations.

Based on the comments received and edits made, we believe that substantial revisions and new analysis were not needed for the EA.

VII. Eagle Take Permit Criteria

Required Determinations

In consideration of this 5-year permit, we evaluated the Selected Alternative’s ability to meet the issuance criteria’s required determinations identified in the Eagle Act’s permitting regulations (see 50 CFR 22.26(f)). Under the regulations, the Service may not issue a permit unless the following issuance criteria are met:

- 1) *The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles and golden eagles.*

Because the Shiloh IV will offset take through offsetting compensatory mitigation, and may reduce the amount of actual take (compared with our take estimates for the project) through the implementation of experimental ACPs, we have determined the action of permit issuance under the Selected Alternative is compatible with the preservation of golden eagles (see analysis in EA Chapter 4). No take of bald eagles is anticipated.

- 2) *The taking is necessary to protect a legitimate interest in a particular locality.*

As discussed in Chapter 1.2 of the EA, Shiloh IV is an operational wind facility that previously received other state and federal environmental compliance authorizations. They are seeking an eagle permit to comply with the Eagle Act as they anticipate some unintentional take of golden eagles will occur due to facility operations.

- 3) *The taking is associated with, but not the purpose of, the activity.*
Shiloh IV currently collects and delivers renewable energy to the California Independent System Operator (CAISO) power grid. Unintentional take of golden eagles is associated with, but not the purpose of the wind energy generating facility.
- 4) *The taking cannot practicably be avoided; or for programmatic authorizations, the take is unavoidable.*

Our ECP Guidance (Service 2013) states:

“Because the best information currently available indicates there are no conservation measures that have been scientifically shown to reduce eagle disturbance and blade-strike mortality at wind projects, the Service has not currently approved any ACPs for wind energy projects.

The process of developing ACPs for wind energy facilities has been hampered by the lack of standardized scientific study of potential ACPs. The Service has determined that the best way to obtain the needed scientific information is to work with industry to develop ACPs for wind projects as part of an adaptive-management regime and comprehensive research program tied to the programmatic-take-permit process.”

Accordingly, the ECP and the Selected Alternative includes an adaptive management framework for which experimental ACPs can be applied to this project to address long-term effects (see EA Table 2-2).

- 5) *The applicant has avoided and minimized impacts to eagles to the maximum extent practicable, and for programmatic authorizations, the taking will occur despite application of advanced conservation practices.*

See answer to #4

- 6) *Issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority according to the following prioritization order:*
- (1) safety emergencies,*
 - (2) Native American religious use for traditional ceremonies that require eagles be taken from the wild,*
 - (3) renewal of programmatic take permits,*
 - (4) non-emergency activities necessary to ensure public health and safety, and*
 - (5) other interests.*

In the Pacific Southwest Region, there are no Native American tribes whose religious practices require eagles to be taken from the wild. Because this will be a programmatic authorization, we have determined that issuing this permit is compatible with the preservation of the golden eagle (i.e., consistent with the goal of stable or increasing breeding populations). Therefore, issuance of this permit will not preclude our ability to issue permits needed to address safety emergencies or necessary to protect an interest of higher priority.

VIII. Significance Criteria

The Selected Alternative will not have a significant effect on the human environment. This conclusion is based on the following examination of the significance criteria as defined in 40 CFR Section 1508.27 as based on the analysis in the EA as summarized below.

Context

NEPA requires the consideration of the significance of an action in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant per 40 CFR 1508.27(a). For purposes of analyzing the Selected Alternative (EA Alternative 3), the appropriate context of potential impacts associated with the Selected Alternative is the local and regional scales, because the Selected Alternative does not affect statewide or national resource values. The context of the Selected Alternative points to no significant unmitigated environmental impact considering the following (as discussed in EA Section 4.2):

- The applicant will offset golden eagle take through compensatory mitigation, and may reduce the amount of actual take (compared with our take estimates for the project) through the implementation of experimental ACPs. This will ensure that the impacts of issuing a programmatic eagle take permit to Shiloh IV on the local and regional golden eagle populations will be less than significant.
- Our assessment (see EA Section 4.2.3.4, subheading, “Mortality due to Turbine Collision”) determined there are no local or regionally significant impacts to sensitive bird species. Even so, prior mitigation commitments outlined in the BBCS (EA Appendix B) further offset impacts to bird populations ensuring impacts will be less than significant.
- As summarized in Section 4.2.3 of the EA, issuance of an eagle take permit to Shiloh IV would have no significant adverse effects on other environmental resources or values at the local or regional scale.
- As discussed in EA Sections 1.7 and 4.2.1.2.1, issuance of an eagle take permit to the operational Shiloh IV project, including the take of eagles anticipated under the permit, is not expected to interfere with cultural practices and ceremonies related to eagles, or to affect the ability to utilize eagle feathers. Eagles that are found will be sent to our Repository and distributed to tribes for religious use. Under the Selected Alternative, the increased monitoring should ensure all carcasses are found in a timely manner compared the existing conditions. This may facilitate an efficient distribution to tribes.

Intensity

The term "intensity" refers to the severity of a proposed action's impact on the environment. In determining the intensity of an impact, the NEPA regulations direct federal agencies to consider ten specific factors, each of which is discussed below in relation to the Selected Alternative for the Project.

1) Impacts can be both beneficial and adverse and a significant effect may exist regardless of the perceived balance of effects.

While consideration of the intensity of project impacts must include analysis of both beneficial and adverse effects, only a significant adverse effect triggers the need to prepare an EIS (40 CFR 1508.27). The potential beneficial effects and adverse impacts of the Selected Alternative are discussed briefly below.

Beneficial Effects. As described in the EA, issuance of a programmatic eagle take permit under the Selected Alternative would result in beneficial effects, primarily to golden eagle populations, but may also benefit other raptors impacted by wind energy generation. Our analysis is in comparison to the No Action Alternative under which the project continues to operate without an eagle take permit's compensatory mitigation and ACP commitments. In addition, issuance of this permit will allow Shiloh IV to operate in compliance with the Eagle Act should eagle take occur.

Adverse Effects. As described in detail in Chapter 4 of the EA, the operation and maintenance of Shiloh IV results in adverse impacts primarily to raptors and golden eagles. All known adverse impacts have been mitigated to the extent practicable by designing the HCP EA's selected alternative to avoid them as much as possible. Even so, birds, including eagles, can be injured and killed by collision with wind turbines. Shiloh IV's ECP (EA Appendix A) and BBCS (EA Appendix B) describe commitments to avoid and minimize and otherwise mitigate impacts to birds and bats. Avian and bat mortality will be monitored and mitigated through an adaptive management plan that has been crafted to address impacts as operational data are gathered. Mitigation included in the EA addresses and substantially reduces the potential impacts to less than significant levels under NEPA.

Potential adverse effects to other environmental resources or values resulting from operation and maintenance of Shiloh IV were also identified. The analyses provided in Section 4.2.3 of the EA and in the relevant sections of the HCP FEA (incorporated into the EA by reference) provide a full discussion of the potential adverse effects and our determination that these effects are not significant.

In summary, the analyses in the EA and implementation of the measures identified in the Selected Alternative (including those in the ECP, BBCS and previous commitments) support the conclusion that the Selected Alternative will not have a significant effect on the quality of the human environment.

2) The degree to which the selected alternative will affect public health or safety.

As discussed in Chapter 1 of the EA, the proposed action is issuance of a programmatic eagle take permit to the operational Shiloh IV Wind Project, LLC. This action will have no effect on public health or safety.

3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.

Impacts to historic and cultural resources, parks lands, prime farmlands, wetlands, wild and scenic rivers, and ecologically critical areas were all considered in Shiloh IV's EIR and HCP FEA analyses. The relevant HCP FEA analyses were incorporated by reference in the EA. Issuance of a programmatic eagle take permit to the operational Shiloh IV wind facility would have no further impacts.

4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

No effects of the Selected Alternative were identified as being highly controversial. As a factor for determining within the meaning of 40 CFR 1508.27(b)(4) whether or not to prepare a detailed environmental impact statement (EIS), controversy is not equated with the existence of opposition to a use. The NEPA implementation regulations (43 CFR 46.30) define controversial as "a circumstance where a substantial dispute exists as to the environmental consequences of the proposed action and does not refer to the existence of opposition to a proposed action, the effect of which is relatively undisputed." Comment letters we received on the EA provided no expert scientific evidence supporting claims that the project will have significant effects, or that it is highly controversial.

5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

As summarized in the ECP and EA, impacts of wind power generation to birds and bats, including eagles, have been well studied within the Montezuma Hills WRA and the nearby Altamont Pass WRA. The ECP and BBCS for Shiloh IV were developed to address any uncertainty regarding impacts. Although a 3-year post construction mortality study is already in progress at Shiloh IV, as required by Solano County's Conditional Use Permit to determine project level impacts to birds and bats (monitoring 50% of the turbines on a monthly basis), the Selected Alternative requires a more rigorous mortality monitoring design to reduce uncertainty regarding impacts to eagles. Under the eagle take permit, mortality monitoring will be conducted at 100% of the turbines on a monthly basis for at least one year. The Service believes this level of monitoring, at a minimum, will help ensure eagle take events are detected.

The adaptive management process will further reduce and monitor potential impacts to eagles by Shiloh IV. Implementation of the ECP and BBCS and issuance of the permit will prevent significant impacts to avian and bat populations.

Additionally, we did not identify predicted effects to any other environmental resources or values from operation and maintenance of Shiloh IV that are highly uncertain or involve unique or unknown risks.

As a result, there are no predicted effects of the Selected Alternative on the human environment that are considered to be highly uncertain or involve unique or unknown risks.

6) *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

Issuance of a programmatic eagle take permit to Shiloh IV does not set precedent for, or automatically apply to other eagle take permit applications the Service is reviewing or could review in the future. Each permit request will be evaluated on a case-by-case basis. Therefore, the Selected Alternative does not establish precedents for future actions or represent a decision in principle about a future action. Moreover, this project will not limit the Service's discretion when processing future eagle take permit applications under the Eagle Act's permitting regulations.

7) *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts-which include connected actions regardless of land ownership.*

Sensitive Bird Species

The HCP FEA considered the effects of Shiloh IV on wildlife and their habitat; that analysis was incorporated by reference into this EA, although we further analyzed impacts on sensitive bird species in the EA (see Section 4.2.3, subheading, *Mortality Due to Turbine Collision*).

We quantified population-level cumulative effects of Shiloh IV's operations to red-tailed hawks and American kestrels because of known high mortality rates for these species in the Montezuma Hills WRA and the nearby Altamont Pass WRA (see EA Table 4-5). Our analysis determined that cumulative population-level impacts are not significant. With implementation of the environmental commitments in the HCP FEA, the BCS Conservation Measures, and the additional commitments set forth in the ECP, we have determined that the Shiloh IV Wind Project would have no significant adverse effects on BCC species, red-tailed hawks or American kestrels.

Golden Eagles

We evaluated cumulative effects on golden eagles as required by NEPA (CFR 1508.8) and the Eagle Act's permitting regulations (see EA Section 4.2.2.6). Under 50 CFR 22.26 (f)(1), when reviewing a permit application, the Service is required to evaluate and consider effects of programmatic take permits on eagle populations at three scales: (1) the eagle management unit/Bird Conservation Region (BCR), (2) local area, and (3) project area. Our evaluation also considers cumulative effects. We incorporated data provided by Shiloh IV, other data on mortality wind farms and electric utilities, and additional information on population-limiting effects in our eagle cumulative impact assessment. Our approach was mostly quantitative but combined some qualitative analysis based on available data and our knowledge of the Montezuma Hills WRA, attendance at local technical meetings, discussions with other local experts, and studies of local eagle populations.

Our cumulative effects analysis contained within the EA (EA section 4.2.2.6) estimates that 12.3% of the local-area population of golden eagles is taken annually, due primarily from wind fatalities operating in the Altamont Pass WRA and to a lesser extent, the neighboring projects within the Montezuma Hills WRA. While the amount of ongoing take exceeds the biological benchmark that our national guidance recommends (5% take of a local-area population), we believe the additional offsetting mitigation within the project's ECP and in the EA under the Selected Alternative will more than offset any impacts attributable to the Shiloh IV project. Therefore, there are no significant adverse cumulative effects contributed by Shiloh IV under the Selected Alternative.

Climate Change

The effects of climate change on eagles and other migratory bird species in the region is treated as a cumulative impact because it occurs later in time (see EA Sections 3.2.2 and 4.2.2.7). Over the life of the project, the effects of climate change in California will likely result in more pronounced seasonal variation. However, because the golden eagles survive on a wide variety of prey species across a broad gradient of climatic zones, it is reasonable to surmise that golden eagles have the capacity to adapt to minor changes. Because of agricultural practices in the Montezuma Hills, the local prey base is not large but is not expected to change substantially as a result of climate change. Moreover, by generating electricity using wind energy rather than fossil fuels, operation of the project could offset production of 93,423–116,779 metric tons of CO₂ equivalent per year (Service 2012). Over the life of the project, this would equate to approximately 3.3–4.0 million metric tons of CO₂ equivalent. This offset would constitute an indirect beneficial effect. Overall, there are no significant adverse cumulative effects contributed by issuance of a programmatic eagle take permit to Shiloh IV under the Selected Alternative.

Other Environmental Analysis

As summarized in Section 4.2.3 of the EA, issuance of an eagle take permit to Shiloh IV would have no cumulatively significant impacts on other environmental resources or values.

8) The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The action of issuing a programmatic eagle take permit to the operational Shiloh IV wind facility will have no adverse effect on historic properties.

9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, or the degree to which the action may adversely affect a species proposed to be listed as endangered or threatened or proposed critical habitat.

Construction and operations

Prior to construction and operations, we issued an Incidental Take Permit (ITP) in April 2012 to Shiloh IV pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act (ESA) for potential effects on California tiger salamander (*Ambystoma californiense*). Issuance of a

programmatic eagle take permit to Shiloh IV under the Selected Alternative would have no additional impacts to species protected by the ESA.

Required Compensatory Mitigation Effects

On April 1, 2014, we submitted an Intra-Service Section 7 ESA Biological Evaluation for the *Shiloh IV Wind Project Eagle Permit Mitigation: Utility Pole Retrofits in Southern Monterey County, California* and a concurrence request to the Service's Ventura Field Office. Our evaluation determined that with implementation of the following avoidance and minimization measures, the retrofit work will have no effect to California condor, least Bell's vireo, southwestern willow flycatcher, vernal pool fairy shrimp, and marsh sandwort, and is not likely to adversely affect San Joaquin kit fox, California red-legged frog, or purple amole.

Avoidance and Minimization Measures

The retrofit work will be conducted during the dry season (July 1-October 31/or as long as the dry season ensues) to avoid potential impacts to ESA-listed species and breeding birds that may be in the area, including eagles. If unusual weather patterns occur, PG&E will not conduct work until 10 days after a rain event that resulted in 0.5 inches of rain or more.

- The retrofit work will not be conducted if poles are located in or adjacent to wetland or riparian areas. Other alternate poles which are not located in or near these habitats would be selected for retrofits.
- The retrofit work will not be conducted if poles are located in or adjacent to ponds or vernal pools.
- The retrofit work will not involve ground-disturbing activities and vehicles will remain on existing public and private access roads to complete the work.
- Vehicles will maintain a speed limit of no more than 10 mph on roads within the right-of-way.

On May 6, 2014, we received a memorandum from the Service's Ventura Field Office stating they concur with our determinations (Attachment 4).

10) Whether the action threatens a violation of Federal, State, or local law requirements imposed for the protection of the environment.

The Selected Alternative will not violate any Federal, State, or local law.

Findings

Under the Selected Alternative, we estimate that one eagle will be killed annually, and up to five eagles will be killed over a 5-year period. The ECP includes ACPs that will result in additional monitoring and operational adjustments. ACPs will be implemented based on the number of fatalities. The Selected Alternative requires increased mitigation and monitoring (compared to the applicant's proposal presented as Alternative 2 in the EA). Our Resource Equivalency Analysis (see EA Appendix D) shows that 133 retrofits will mitigate the loss of five eagles. Increased mortality monitoring associated with this alternative (i.e., evaluating all turbines during a monitoring year), will help to ensure that fatalities are detected and will support validation of the take estimate. Increased monitoring also has the benefit of accelerating the use of the stepwise table if a fatality is discovered, thereby helping reduce future fatalities. As

summarized in Section 4.2.3 of the EA, issuance of an eagle take permit to Shiloh IV would have no significant adverse effects on other environmental resources or values. Based on the intensity and context of these effects and consideration of the elements associated with the Selected Alternative, issuance of a programmatic eagle take permit to Shiloh IV as analyzed in the attached EA is not expected to result in significant adverse effects to the human environment.

IX. Final Eagle Conservation Plan

The EA analyzed the *Draft Eagle Conservation Plan for the Shiloh IV Wind Project* submitted in August 2012 (EA Appendix A). At our request, the applicant submitted a *Final Eagle Conservation Plan for the Shiloh IV Wind Project* (Attachment 3) which incorporates the additional mitigation and mortality monitoring requirements as described in our Selected Alternative of the EA (Attachment 1) and adopts the minor language changes made to Table 2-2 (*Summary of Advanced Conservation Practices Using a Stepwise Approach to be Implemented when Eagle Take Occurs on Shiloh IV*). Issuance of a programmatic eagle take permit to Shiloh IV will require implementation of the *Final Eagle Conservation Plan for the Shiloh IV Wind Project* (Attachment 3) as submitted in June 2014.

X. Conclusions

The Service developed the EA and findings in accordance with the National Environmental Policy Act of 1969, as amended, and the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR §§ 1500-1508). The Service concludes that, with the implementation of the avoidance, minimization, and mitigation measures outlined in the EA, ECP, and BBCS, the Selected Alternative for issuance of a programmatic eagle take permit to the Shiloh IV Wind Project will result in no significant impacts to the quality of the human environment, individually or cumulatively with other actions in the general area.

It is my determination that the Selected Alternative is not a major Federal action significantly affecting the quality of the human environment under section 102(2)(c). Accordingly, an environmental impact statement is not required and our environmental review under NEPA is concluded with this finding of no significant impact (43 CFR § 46.325). As stated at the beginning of this document, the EA prepared in support of this finding is incorporated by reference and attached (Attachment 1). The final EA is also available from the Service's Pacific Southwest Regional website at:

<http://www.fws.gov/cno/conservation/MigratoryBirds/EaglePermits.html>.



Deputy Regional Director
Pacific Southwest Region
U.S. Fish and Wildlife Service



Date

XI. Literature Cited

- U.S. Fish and Wildlife Service (Service). 2008. *Birds of Conservation Concern 2008*. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. Available: <<http://www.fws.gov/migratorybirds/>>
- . 2009. *Final Environmental Assessment*. Proposal to Permit Take Provided under the Bald and Golden Eagle Protection Act. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington D.C., USA.
- . 2012. *Final Environmental Assessment for the Shiloh IV Wind Project Habitat Conservation Plan*. March. (ICF 00810.10.). Sacramento, CA. With technical assistance from ICF International, Sacramento, CA.
- . 2013. *Eagle Conservation Plan Guidance*. Module 1: Land-based Wind Energy Development. Version 2. April.

