Hidden Hills Solar Electric Generating Station

California Energy Commission
DOCKETED
11-AFC-2
TN # 69944
MAR. 18 2013

Summary of Conclusions
Biological Resources

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March 2013

PROOF OF SERVICE (REVISED 3/8/13) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 3/18/13
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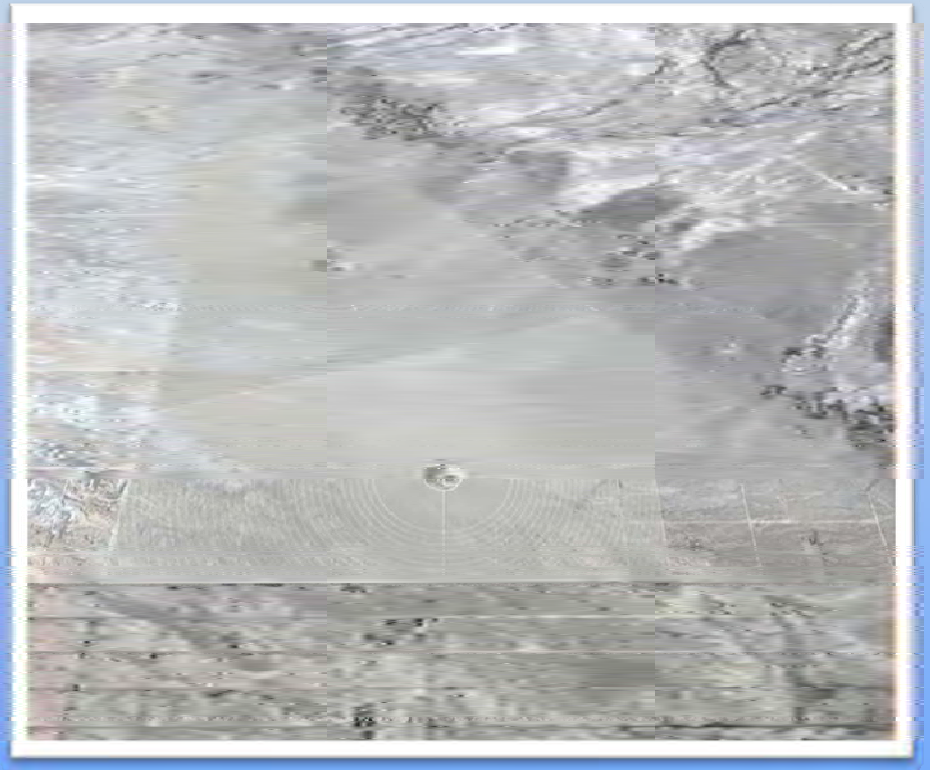
Issues in Dispute

- Desert Tortoise
  - Presence and habitat conditions
  - Proposed mitigation
- Burrowing Owl Use
  - Presence and habitat conditions
  - Proposed mitigation
- Risk to Birds from Solar Flux
  - Bird abundance and use
  - Risk to birds from solar flux
  - Proposed significance conclusions and mitigation

Project Setting and Overview

- Pahrump Valley
  - 3,277 acres
- Native vegetation
  - 1,580 acres creosote bush scrub
  - 1,616 acres shadscale
  - 77 acres disturbed
    - Roads, orchard, etc.
- Bordered by public and private lands
  - Charleston View



Impacts to Special Status Plants and Vegetation

- Loss of vegetation, spread of invasive weeds
- Eleven species of rare plants
  - Four species require mitigation
  - Gravel milk-vetch, Wheeler's skeleton weed, Torrey's joint-fir and Preuss' milk-vetch
- Less than significant with proposed Conditions of Certifications

Impacts to Desert Washes and Ground Water Dependent Ecosystems

- 23.21 acres of State waters
- Ground water dependent vegetation
  - Mesquite, seeps, and springs
- Less than significant or avoided with Conditions of Certifications

Impacts to Special Status Wildlife

- Desert tortoise (ST/FT)
  - 3,197 acres of habitat
  - Between 9 and 67 animals
  - Require translocation
- Burrowing owl (CSSC)
- American badger (CSSC)

- Less than significant with Conditions of Certifications

Impacts to Special Status Wildlife

- Desert kit fox
  - Displacement, mortality
  - Loss of burrows and habitat
- Bighorn sheep
  - Disruption of movement
- Bats
  - Construction and operation impacts
- Resident and migratory birds
  - Impacts from habitat loss
- Less than significant with Conditions of Certifications

Significant and Unavoidable Impacts

- Resident/Migratory Birds
  - Broad group of native birds and raptors
  - Golden Eagle
  - Electrocution, collision, and solar flux
    - Electrocution considered minimal risk
- Collision and exposure to solar flux
  - **Significant residual effects** will remain even with the implementation of Conditions of Certification

Cumulative Impacts

- Vegetation, desert washes, groundwater dependent vegetation, desert tortoise, and most wildlife
  - Not cumulatively considerable
- Resident/Migratory Birds and Golden Eagle
  - **Cumulatively considerable** even with the implementation of Conditions of Certification

Issues in Dispute

- Desert Tortoise Mitigation
  - Estimated number and habitat
  - Interpretation of data and ecology
- Burrowing Owl Mitigation
  - Use of new mitigation
  - Presence or use of the site
- Risk to Birds and Golden Eagle from Solar Flux
  - Bird use at the site
  - Methods for evaluating risk
  - Impact conclusion and approach to mitigation

Desert Tortoise-Applicant Suggests

- Applicant suggests site supports limited tortoise
  - Staff estimates are wrong
- Habitat is generally low quality
  - Soils, weeds, and disturbance
- Mitigation is too high
  - Applicant proposed mitigation ratios of:
    - 0.5:1, 1:1, and 1.5:1
    - **Effective mitigation ratio of less than 1:1**
      - Propose 2,831 acres for impacts to 3,274

Desert Tortoise Sign

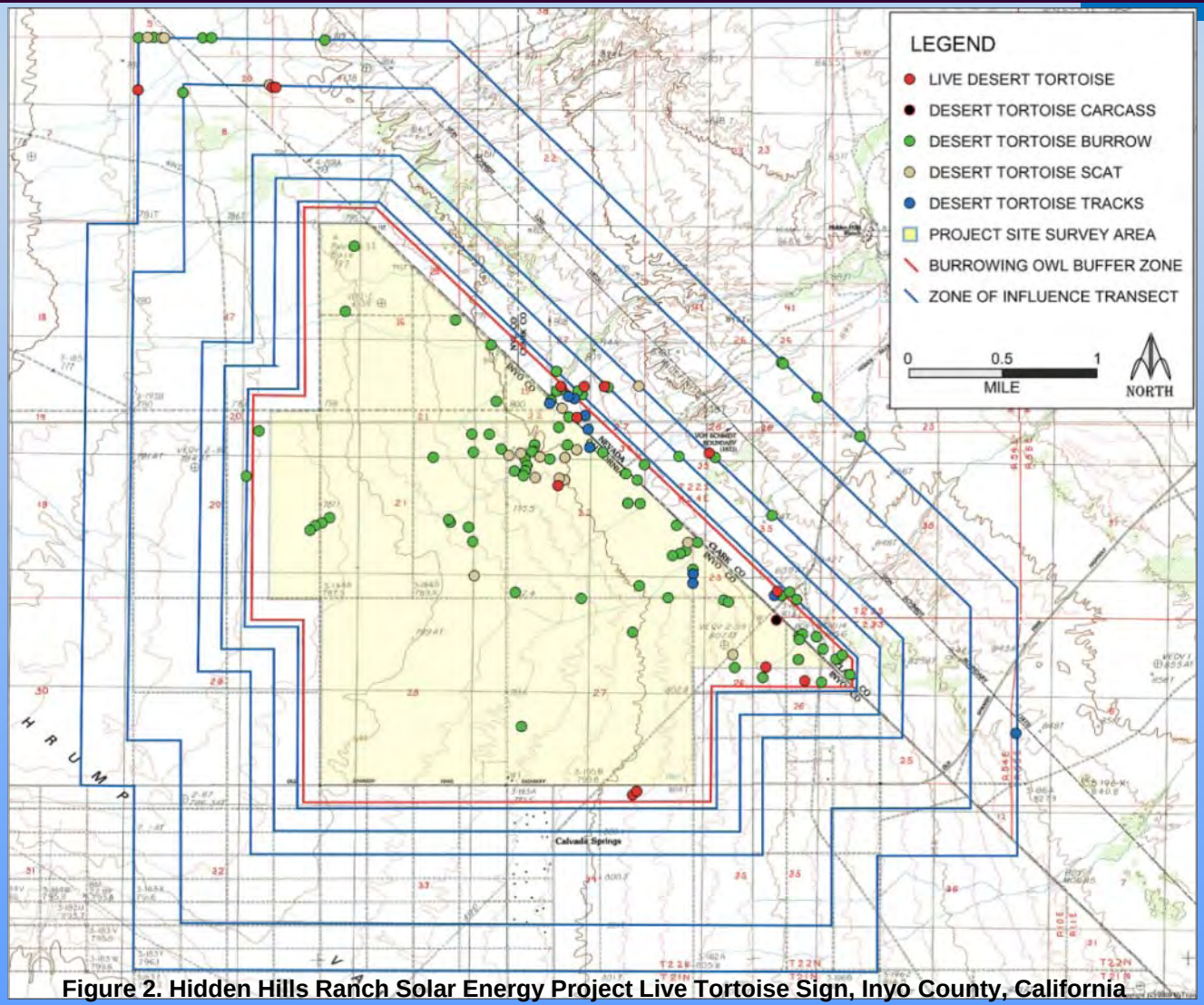


Figure 2. Hidden Hills Ranch Solar Energy Project Live Tortoise Sign, Inyo County, California

Desert Tortoise Sign and Estimates

Biological Resources Table 12
2011 Desert Tortoise Survey Results

Location	Tortoise	Carcass	Burrows	Scat	Tracks
Project Site	2	1	58	12	5
150 M Buffer*	6	0	15	1	4
Zone of Influence**	7	0	21	5	0
Total Sign	**15**	**1**	**94**	**18**	**9**

Biological Resources Table 13
Estimated Number of Desert Tortoise on the Project Site and Within the 150 meter Buffer (95 percent confidence values)

Adult and Sub-adults*		Juvenile Estimates**		Eggs***	Total Adult/Sub-adult and Juvenile	
Lower	Upper	Lower	Upper	(Min-Max)	Lower	Upper
6	33	3	34	46-158	**9**	**67**

Desert Tortoise Estimates

- Applicant suggest animals within the buffer not be counted
  - Yet this argument was presented by Applicant to support translocation and in DT survey report
  - Ignores that desert tortoise in adjacent lands likely use the site
- Applicant suggest there are effectively no tortoise in areas dominated by shadscale
  - Yet desert tortoise burrows occur in these areas

Desert Tortoise Habitat

Staff Recommendations for Desert Tortoise

- Population estimates valid
  - Reasonable range of expected tortoise
- Habitat is largely intact
  - Supports broad diversity of plant life
  - Tortoise use the site
- Staff mitigation is reasonable and developed with CDFW
  - Full mitigation standard:
    - 0:1, 1:1, and 3:1
    - **Effective mitigation ratio of approx. 2:1**
      - Propose 6,358 acres for impacts to 3,274

Burrowing Owls

- Applicant suggests that burrowing owls are common and few owls use the site
  - Species is sensitive and recognized in decline
  - Documented on the site
- Applicant suggests no breeding/winter use
  - Staff contends surveys inadequate to draw this conclusion
- Applicant suggests mitigation is too high
  - Proposes mitigation based on 1995 Burrowing Owl Guidelines

Burrowing Owl

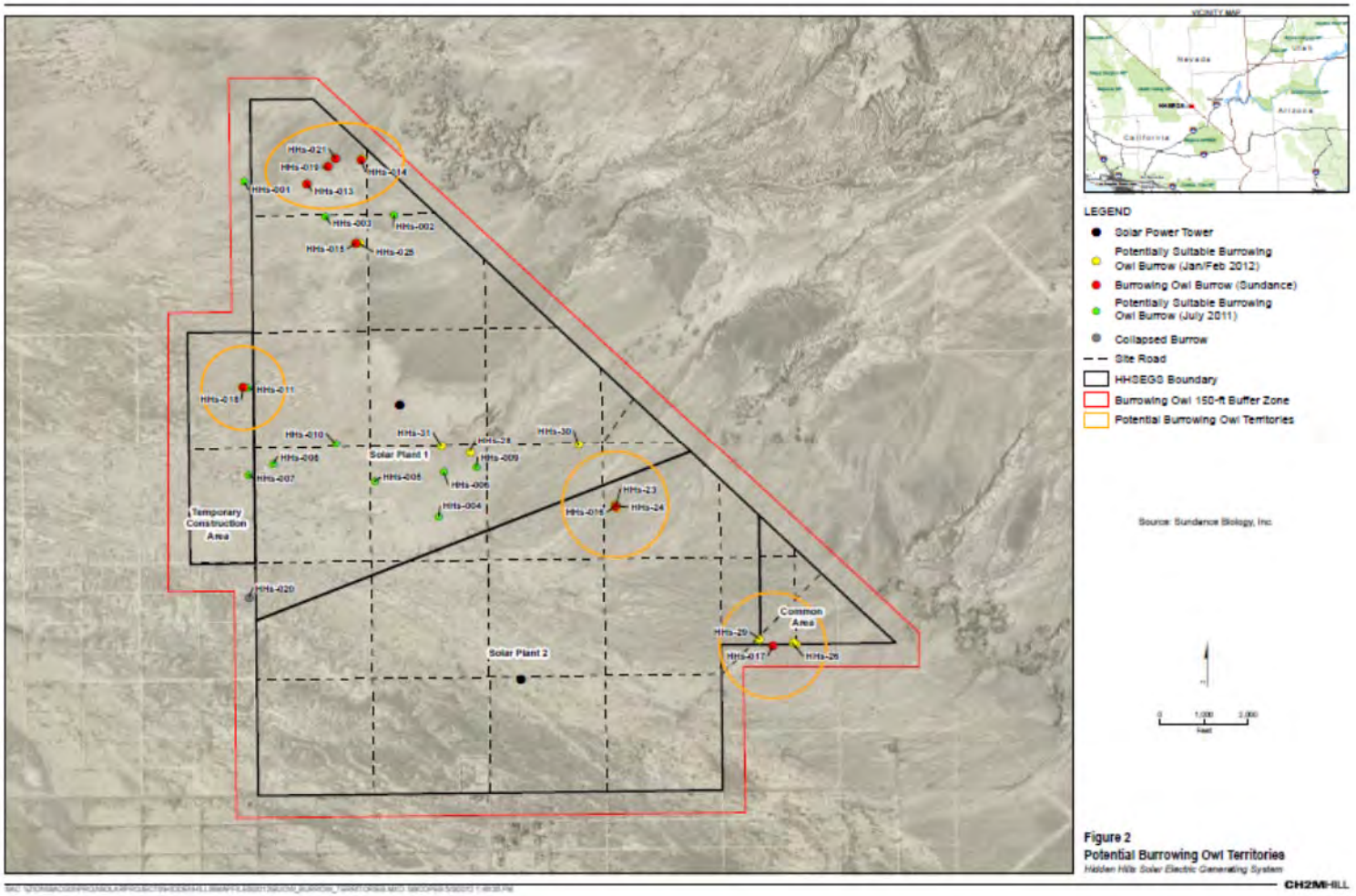


Figure 2
Potential Burrowing Owl Territories
Hidden Hills Solar Electric Generating System

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Staff Recommendations for Burrowing Owl

- We do not accept the conclusions of the applicant
- Significance conclusions and mitigation are reasonable developed with CDFW
  - Burrowing owl and their sign is present
  - Project will displace birds
- Propose mitigation to replace lost territories
  - Scale and schedule of the project
  - Review of 1995 and 2012 Guidelines for Burrowing Owls
    - Current mitigation approach may not be effective

Migratory Birds and Golden Eagles

- Applicant suggests bird use of the site is low
  - Staff suggests that bird use is higher and that applicant misinterprets existing data
  - Type of surveys are not conducive to population estimates
- Applicant suggests the site is not in a migratory corridor
  - Areas is located in an important migratory corridor
  - Ash Meadows, Oasis Valley, Amargosa Valley

Migratory Birds and Golden Eagles

- Applicant suggest limited use by golden eagles
  - Staff notes that eagles are common in the area
  - Applicant data clearly supports eagle presence
  - Eagles noted on five separate days during DT surveys between April and May 2011
- Applicant contends low risk to migratory birds and eagles from exposure to solar flux
  - Staff suggests that existing data is inadequate to draw this conclusion
  - Risk is real and supported by evidence

Golden Eagle Nests

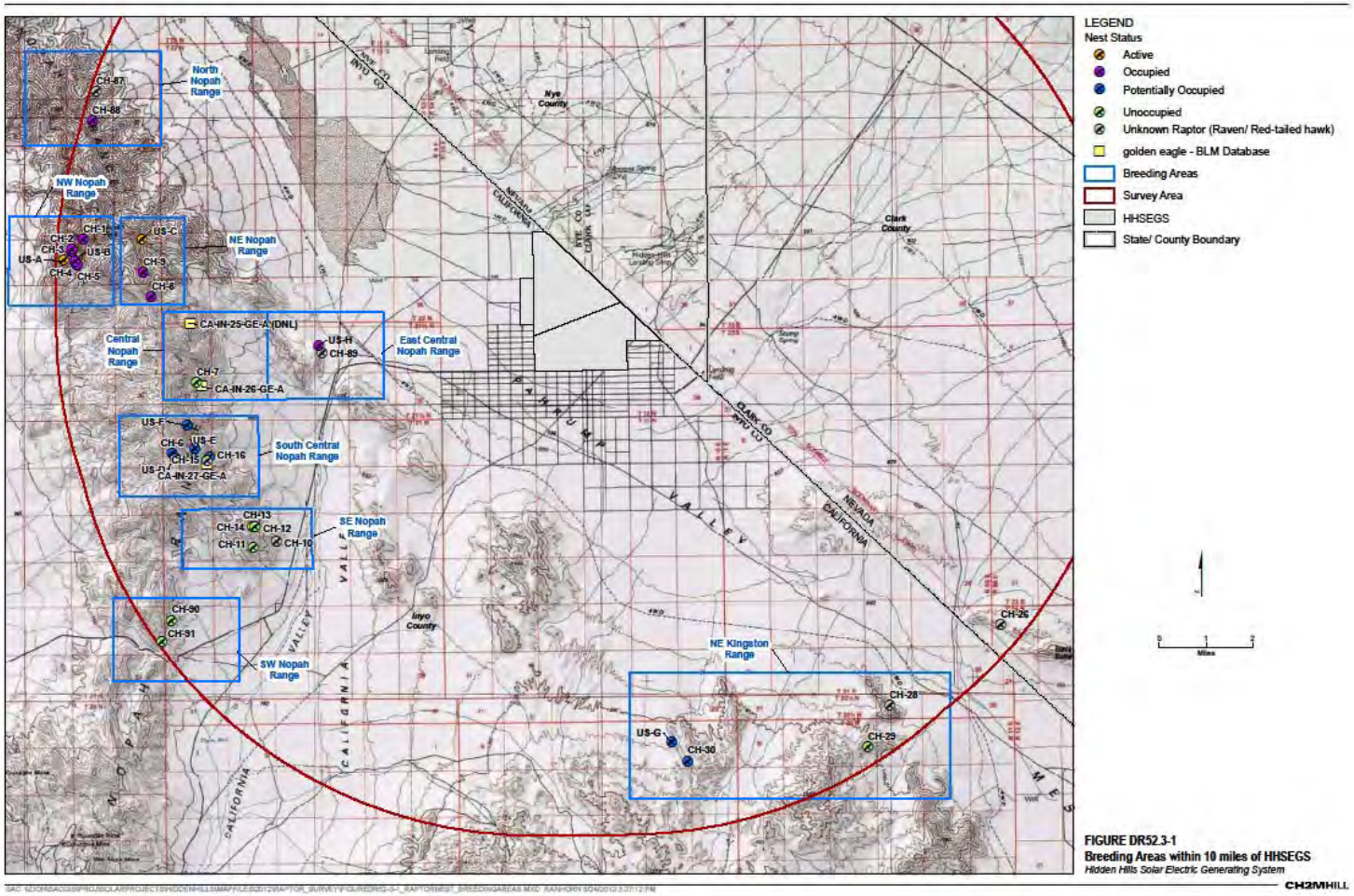

FIGURE DR52.3-1
Breeding Areas within 10 miles of HHSEGS
Hidden Hills Solar Electric Generating System

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Golden Eagles Observations

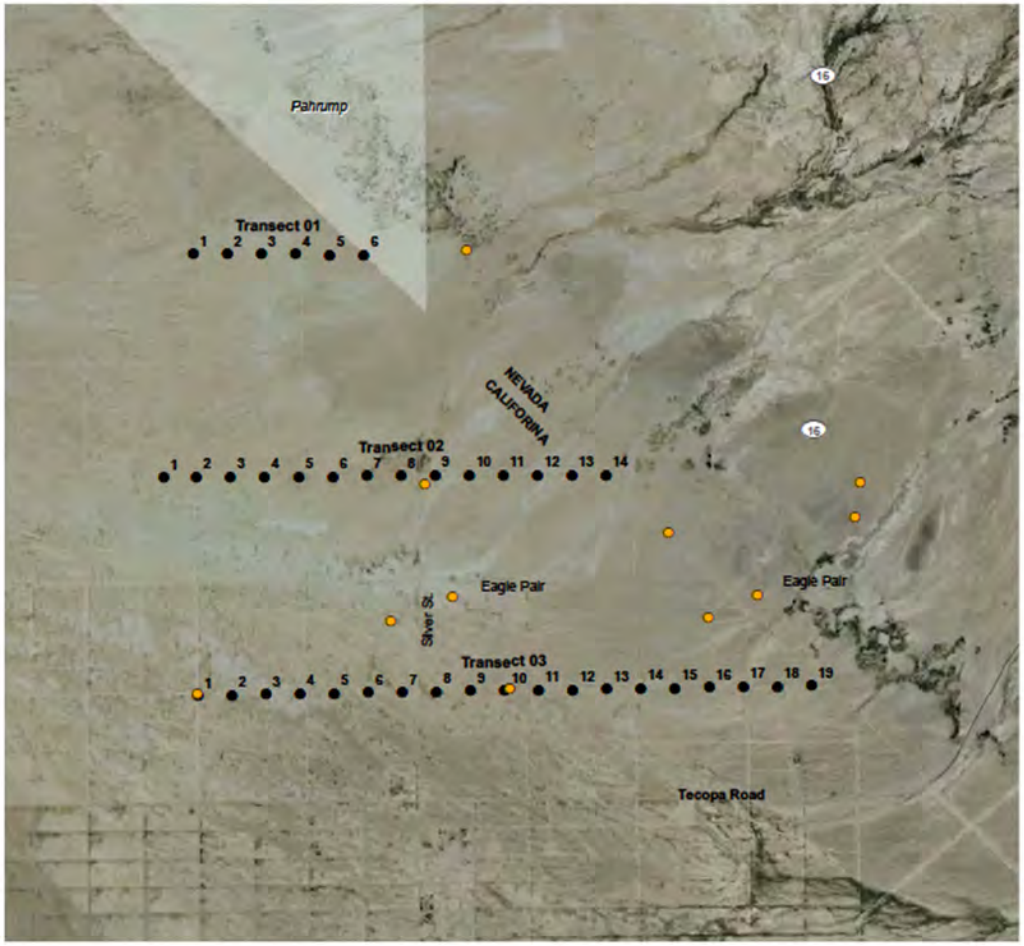

Figure 1
Avian Transects and Point Counts
Golden Eagle Use Survey
Hidden Hills Solar Energy Generating System

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Applicant Recommendations for Migratory Birds and Golden Eagles

- Provided alternative mitigation approach
  - Provides 1:1 land acquisition
  - Conservation measures
    - $300,000 for retrofitting and $500,000 for bird mitigation
  - Bird and Bat Plan/No Eagle Conservation Plan
- Staff review of alternative approach
  - Lands would be nested/no added mitigation
  - Funds could be incorporated into conditions
  - Bird and Bat Plan similar to existing condition
    - Staff recommends an Eagle Conservation Plan

Staff Recommendations for Migratory Birds and Golden Eagles

- Significance conclusions and mitigation are reasonable
  - Risk, 30 year operational life, and location
- Risk based on interpretation of data and bird ecology
  - Collision and exposure to solar flux
- Proposed Conditions (Eagle Conservation Plan) are appropriate and supported by FWS
  - Scale of the project
  - Presence of eagles

Questions

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APPLICATION FOR CERTIFICATION FOR THE HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM

Docket No. 11-AFC-02

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