Office of Energy Project

January 2007

FERC/FEIS – 0191F

Final Environmental Impact Statement

Lake Elsinore Advanced Pumped Storage Project

FERC Project No. 11858

Federal Energy
Regulatory Commission
888 First Street N.E.
Washington, DC 20426

U. S. Forest Service
Trabuco Ranger District
U.S. Department of
Agriculture
1147 East 6th Street
Corona, CA 92897

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Federal Energy Regulatory Commission – Office of Energy Projects

U. S. Forest Service - Trabuco Ranger District - U.S. Department of Agriculture

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Cover Letter (and other information before the Table of Contents)

FEIS

FERC/EIS – 0191F

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR HYDROPOWER LICENSE

Lake Elsinore Advanced Pumped Storage Project
FERC Project No. 11858

California

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, DC 20426

U.S. Department of Agriculture
Cleveland National Forest
San Diego, CA

January 2007

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FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

TO THE PARTY ADDRESSED:

Attached is the final environmental impact statement (EIS) for the Lake Elsinore Advanced Pumped Storage (LEAPS) Project, located primarily on Lake Elsinore and San Juan Creek, in the city of Lake Elsinore, Riverside County, with transmission lines extending into San Diego and Orange counties, California.

This final EIS documents the view of governmental agencies, non-governmental organizations, affected Indian tribes, the public, the license applicant, U.S. Department of Agriculture, Forest Service (USFS) staff and Federal Energy Regulatory Commission (Commission) staff. It contains evaluations on Elsinore Valley Municipal Water District and Nevada Hydro Company, Inc.'s (the co-applicants') proposal and the staff alternative for licensing the LEAPS Project.

The Commission and the USFS have agreed to participate as cooperating agencies in the preparation of this EIS for the LEAPS Project. The Commission will use the EIS to determine whether, and under what conditions, to issue an original hydropower license for the project. The USFS will use the EIS to base its finding under Section 4(e) of the Federal Power Act and to decide whether to issue any necessary special use authorizations.

Before the Commission makes a licensing decision, it will take into account all concerns relevant to the public interest. The final EIS will be part of the record from which the Commission will make its decision. The final EIS was sent to the U.S. Environmental Protection Agency and made available to the public on or before (on or before January 31, 2007).

Copies of the final EIS are available for review in the Commission's Public Reference Branch, Room 2A, located at 888 First Street, N.E., Washington, DC 20426. The final EIS also may be viewed on the Internet at www.ferc.gov under the eLibrary link. Please call (202) 502-8822 for assistance.

Attachment: Final Environmental Impact Statement

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COVER SHEET

a. Title: Licensing the proposed Lake Elsinore Advanced Pumped Storage (LEAPS) Project in the city of Lake Elsinore, Riverside County, California, Federal Energy Regulatory Commission (Commission or FERC) Project No. 11858.

b. Subject: Final Environmental Impact Statement

c. Lead Agency: FERC with the U.S. Forest Service (USFS) as a cooperating agency

d. Abstract: The Elsinore Valley Municipal Water District (Elsinore Valley MWD) and Nevada Hydro Company, Inc. (Nevada Hydro) filed an application for an original license for the construction and operation of its proposed Lake Elsinore Advanced Pumped Storage (LEAPS) Project, which would be located primarily on Lake Elsinore and San Juan Creek, in the city of Lake Elsinore, Riverside County, with transmission lines extending into San Diego and Orange counties, California. The USFS is reviewing an application for a special use permit for constructing the Talega-Escondido/Valley-Serrano 500-kilovolt transmission interconnection, including transmission lines associated with the LEAPS Project, as a transmission line only project.

e. Contact:

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f. Transmittal: This final environmental impact statement jointly prepared by the Commission's and USFS' staff on the hydroelectric license application filed by the Elsinore Valley MWD and Nevada Hydro for the proposed LEAPS Project (FERC Project No. 11858) is being made available to the public on or before January 31, 2007, as required by the National Environmental Policy Act of 1969[1]

[1] National Environmental Policy Act of 1969, amended (Pub. L. 91-190. 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, §4(b), September 13, 1982).

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FOREWORD

The Federal Energy Regulatory Commission (Commission), pursuant to the Federal Power Act (FPA)[2] and the U.S. Department of Energy Organization Act[3] is authorized to issue licenses for up to 50 years for the construction and operation of non-federal hydroelectric development subject to its jurisdiction, on the necessary conditions:

> That the project…shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in Section 4(e)…[4]

The Commission may require such other conditions not inconsistent with the FPA as may be found necessary to provide for the various public interests to be served by the project.[5] Compliance with such conditions during the licensing period is required. The Commission's Rules of Practice and Procedure allow any person objecting to a licensee's compliance or noncompliance with such conditions to file a complaint noting the basis for such objection for the Commission's consideration.[6]

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[2] 16 U.S.C. §791(a)-825r, as amended by the Electric Consumers Protection Act of 1986, Public Law 99-495 (1986) and the Energy Policy Act of 1992, Public Law 102-486 (1992).

[3] Public Law 95-91, 91 Stat. 556 (1977).

[4] 16 U.S.C. §803(a).

[5] 16 U.S.C. §803(g).

[6] 18 C.F.R. §385.206 (1987).

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FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

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ACRONYMS AND ABBREVIATIONS

APE	area of potential effects
APLIC	Avian Power Line Interaction Committee
AQMD	Air Quality Management District
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
BMP	best management practice
ºC	degrees Celsius
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDP	Census Designated Place
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CNPS	California Native Plant Society
co-applicants	Elsinore Valley Municipal Water District and Nevada Hydro Company, Inc.
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
CRAM	California Rapid Assessment Method
dBA	A-weighted decibel scale
dbh	diameter at breast height
DO	dissolved oxygen
EIS	environmental impact statement
Elsinore Valley MWD	Elsinore Valley Municipal Water District
EMF	electromagnetic field
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ºF	degrees Fahrenheit
Flood Control District	Flood Control and Water Conservation District
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
FWS	U.S. Fish and Wildlife Service
GIS	geographic information system
HCP	Habitat Conservation Plan
HPMP	Historic Properties Management Plan
Hz	Hertz
Interior	U.S. Department of the Interior
kV	kilovolt
L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
$L_{\%}$	percentile distributions of sound levels
LEAPS	Lake Elsinore Advanced Pumped Storage
Joint Watershed Authority	Lake Elsinore and San Jacinto Watersheds Authority
LOS	level of service
MBA	Michael Brandman Associates
mG	milliGauss
mg/l	milligrams per liter
msl	mean sea level
MIS	management indicator species

Multi-Species HCP	Multi-Species Habitat Conservation Plan
MW	megawatt
MWh	megawatt-hours
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
Nevada Hydro	Nevada Hydro Company
NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries
O&M	operation and maintenance
OHV	off-highway vehicle
PM_{10}	particulates that have an aerodynamic diameter of 10 microns or smaller
$PM_{2.5}$	particulates that have an aerodynamic diameter of 2.5 microns or smaller
R	rural
RN	Roaded Natural
ROS	Recreation Opportunity Spectrum
San Diego Water Board	San Diego Regional Water Quality Control Board
Santa Ana Water Board	Santa Ana Regional Water Quality Control Board
SCE	Southern California Edison
SDG&E	San Diego Gas & Electric Company
SHPO	State Historic Preservation Officer
SIO	Scenic Integrity Objective
SPNM	Semi-primitive, Non-motorized
SPM	Semi-primitive, Motorized
STEP	Southwest Transmission Expansion Plan
State Water Board	State Water Resources Control Board
TCP	traditional cultural properties
TE/VS Interconnect	Talega-Escondido/Valley-Serrano 500-kV Interconnect Project
TMDL	Total Maximum Daily Load
μg/l	micrograms per liter
USFS	U.S. Department of Agriculture, Forest Service
USGS	U.S. Geological Survey
V/m	volts per meter
WECC	Western Electricity Coordinating Council

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
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Executive Summary
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EXECUTIVE SUMMARY

On February 2, 2004, the Elsinore Valley Municipal Water District (Elsinore Valley MWD) and the Nevada Hydro Company, Inc. (Nevada Hydro), or co-applicants, filed an application for an original license with the Federal Energy Regulatory Commission (Commission or FERC) for constructing and operating the 500-megawatt Lake Elsinore Advanced Pumped Storage Project (LEAPS Project). The project would occupy 2,412 acres of federal lands, including lands managed by the U.S. Department of Agriculture, Forest Service (USFS), Cleveland National Forest; U.S. Bureau of Land Management; and the Department of Defense (Camp Pendleton). The USFS is reviewing an application for special use permit for constructing the Talega-Escondido/Valley-Serrano 500-kilovolt transmission interconnection, including transmission lines associated with the LEAPS Project, as a transmission line only project. The USFS is a cooperating agency in preparing this environmental impact statement (EIS) for the LEAPS Project (FERC No. 11858), including both the pumped-storage facilities and the transmission lines.

This final EIS evaluates the potential natural resource benefits, environmental effects, and economic costs associated with granting a FERC license for the entire LEAPS Project and granting a USFS special use permit for the transmission lines associated with the project. The alternatives examined include the following: (1) no action (likely construction of a simple-cycle combustion turbine and denial of the special use permit); (2) the co-applicants' proposed action; and (3) a staff alternative.

As described in detail in section 2.3, the co-applicants' proposed action consists of an upper reservoir in Morrell Canyon, a powerhouse at the Santa Rosa location, and a transmission line that would cross the Cleveland National Forest. The co-applicants propose numerous measures to address the potential effects of the proposed LEAPS Project on environmental resources in the project area. We describe these proposed measures in detail in section 2.3.6. The staff alternative that comprises an upper reservoir at the Decker Canyon site, a powerhouse at the Santa Rosa location, and a transmission alignment is described in detail in section 2.4.3. The staff alternative includes most of the co-applicants' protection, mitigation, and environmental measures, except for those measures associated with the Morrell Canyon upper reservoir site and the installation of fish screens. We have modified several of the co-applicants-proposed measures and added others.

The co-applicants' proposal to locate the upper reservoir in Morrell Canyon would disrupt flows in the San Juan Creek drainage, displace Lion Spring, and remove more than 20 acres of southern coast live oak riparian forest. Recreational use at this location would be adversely affected because Morgan Trail, which accesses the San Mateo Wilderness Area, would need to be relocated either temporarily or permanently depending on the final design of this facility and because two of the most-used hang gliding launch sites (E and Edwards) would be closed or subjected to use restrictions during construction. To avoid these potential adverse effects, the staff alternative would locate the upper reservoir in Decker Canyon. There would be no need to install a stream bypass conveyance system at this location because the footprint of the reservoir is situated at the very top of the watershed, with no established stream network entering the site. Only 5 acres of southern coast live oak would be affected and less off-site mitigation for habitat loss would be required, and no rare plant species would be affected. Locating the upper reservoir at the Decker Canyon location would avoid construction effects on the use of the E and Edwards hang gliding launch sites. Table ES-1 compares the potential effects at the proposed Morrell Canyon and Decker Canyon locations.

As described in the draft EIS, the co-applicants proposal to connect to the proposed underground powerhouse at the Santa Rosa location via an above-ground transmission line along the South Main Divide Road would have adversely affected the egress from the community of Rancho Capistrano in the case of a wildfire and would have precluded hang gliding activities at the USFS permitted launch sites. In the draft EIS, we included an underground powerhouse at the Ortega Oaks site and a mid-slope transmission alignment in a staff alternative to the co-applicants' proposal. The Ortega Oaks site combined with routing the transmission lines along a mid-slope alignment and west of the USFS-

permitted launching sites lessened the potential effects on hang gliding opportunities and provided an opportunity to provide a formal landing area.

In comments on the draft EIS, the co-applicants and others point out that Riverside County approved a subdivision of 100 single family residential lots at Ortega Oaks in April 2004, including the 58-acre site included in the staff alternative for the powerhouse and substation. The co-applicants also filed a report on the comparative geological and geotechnical conditions at the three powerhouse sites (Genterra, 2006). This report concludes that the Ortega Oaks site offers the least desirable subsurface conditions of the three sites. Hang gliding advocates commented that the proposed 5-acre formal landing area at Ortega Oaks would be inadequate and the staff alternative would still present hazards associated with an aboveground substation and the above-ground electrical distribution lines.

In response to the draft EIS and comments on the draft EIS, the co-applicants revised their proposed transmission alignment. In response to comments on the draft EIS, we also revised the staff alternative transmission alignment and powerhouse location. Given the proximity to the existing residential community adjacent to the Ortega Oaks site, the approved subdivision of lands that comprise the site, and the fact it would not eliminate hazards to hang gliders, we have revised the staff alternative to include a powerhouse at the Santa Rosa location. Locating the powerhouse at the Santa Rosa site would avoid conflicts with existing and planned high-density residential communities at Ortega Oaks. This alternative also would provide a clear path for hang gliding from the USFS-permitted launch sites along South Main Divide Road and the existing informal landing site at Ortega Oaks and would place the above ground substation away from the existing landing site. Table ES-1 compares the potential effects of the Santa Rosa and Ortega Oaks powerhouse locations.

As described in the draft EIS, both the co-applicants' proposed and staff alternative alignments would have created conflicts with commercial enterprises along the northern segment of the transmission alignments. Both the co-applicants' proposed and staff alternative alignments now avoid those conflicts. Both also include underground segments of about 3 and 2.1 miles, respectively, to reduce potential effects on egress from the Rancho Capistrano community and on hang gliding activities at the USFS permitted hang gliding launch sites. The staff alternative transmission alignment also reduces conflicts with the Cleveland National Forest Land Management Plan and USFS fire suppression activities. The co-applicants' proposed alignment reduces conflicts with residential subdivisions along the southern segment and would generally be less visible to area residents. The southern segment of the staff alternative transmission alignment avoids the San Mateo Wilderness area but runs near private residential properties, including the La Cresta community. The two routes are the same along about 4 miles of the southern end of the alignment to the connection with the SDG&E line. Table ES-1 compares the effects of the co-applicants' proposed transmission alignment and the staff alternative transmission alignment.

We considered whether to include in the staff alternative the burial of the entire 32-mile-long transmission line and the 2-mile connection to the powerhouse or burying portions along the northern and southern alignments. Burying the entire line would eliminate most of the visual effects (there would still be above ground substation connections) but would be cost prohibitive at an incremental cost in excess of $350 million. However, we recognize that there may be locations near the alignment (such as Sycamore Creek or Glen Eden Sun Club) where the acquisition of easements may displace residents and where additional underground segments may be a feasible solution.

Overall, the staff alternative transmission alignment would reduce conflicts with USFS management plan and fire suppression activities, hang gliding activities, and commercial enterprises. We recognize that the co-applicants' proposed alignment is the less visible from key viewpoints in the wilderness area, along Ortega Highway, and from Lake Elsinore, but it would still interfere with USFS fire suppression activities in several areas and would cross back-country non-motorized areas of the Cleveland National Forest.

We estimate that the cost of building and operating either the co-applicants' proposal or the staff alternative would exceed their economic benefits during the project's first year of operation. The proposed LEAPS Project is estimated to cost $120,172,600 ($77.03/MWh) more annually than alternative power and the staff alternative is estimated to cost $124,841,500 ($80.03/MWh) more than alternative power annually. Although there are several reasons why the staff cost estimate is higher than the co-applicants' estimate, the main one is that our estimated cost to construct the project is higher than the co-applicants'. Because of the limited subsurface data available, we have significantly increased the co-applicants' cost estimate in several areas because we do not think the co-applicants' cost estimate properly accounts for the site-specific geological and groundwater conditions. During the final design process, the co-applicants' propose to conduct more detailed geotechnical studies. If the site information the co-applicants gather shows the site conditions are better than what we assumed, they may be able to build the project for less than the cost we estimate.

Despite the higher cost of the staff alternative compared to no action, it would have the benefit of allowing the co-applicants to construct and operate the project as a peak energy resource and as part of a long-term solution to southern California's transmission congestion bottlenecks. The Talega-Escondido/Valley-Serrano transmission line could provide up to 1,000 MW of import capability into the San Diego area with up to 500 MW of this imported power being supplied by the LEAPS Project during high-demand periods. Pumped storage stores power during off-peak periods that can be provided rapidly during on-peak periods, which could provide a valuable addition to the regional system.

Based on our independent analysis of the LEAPS Project, including our consideration of all relevant economic and environmental concerns, we select the staff alternative as our preferred alternative and conclude that our preferred alternative represents the best balance between developmental and non-developmental resources.

Table ES-1. Summary of key differences in the potential effects of the co-applicants' proposal and the staff alternative. (Source: Staff)

	Upper Reservoir Comparison	
Resource/Issue	**Morrell Canyon (co-applicants)**	**Decker Canyon (staff)**
Area of effect	130-acre footprint; daily fluctuations of 40 feet and weekly fluctuations of 75 feet	120-acre footprint; daily and weekly fluctuations would be on the same order of magnitude as the upper reservoir at Morrell Canyon
	2.6 million cubic yards of fill needed for dam	3.0 million cubic yards of fill needed for dam
Fill materials		Less overburden at Decker Canyon would allow easier procurement of solid rock material for fill for dam and dike construction
Groundwater	Construction of tunnels for high pressure conduits could affect groundwater; design review of collection system for Lion Spring and effects on groundwater	Construction of tunnels for high pressure conduits could affect groundwater; no collection system would be required
Seismic hazards	Faults may control surface flows at the Morrell Canyon site	No faults have been identified at the Decker Canyon site and subsurface flow does not appear to be controlled by the presence of faults
Surface water	Upper reservoir would interrupt stream flow	Same

	Upper Reservoir Comparison	
Resource/Issue	**Morrell Canyon (co-applicants)**	**Decker Canyon (staff)**
Wetland and riparian habitat	Would affect 1.7 acres of waters of the U.S. and 4.8 acres of waters of the state, including Lion Spring; loss of these waters and associated riparian habitat would affect plant diversity and wildlife species; effects on downstream areas would be minimized by the water conveyance system under the reservoir	Would affect 0.3 acre of waters of the U.S. and 0.9 acre of waters of the state; no effects on springs or seeps; smaller effects on downstream areas because drainage area is smaller
Oak woodland communities	Would convert about 20 acres of southern coast live oak forest (500 to 600 individual trees over 8 diameter at breast height [dbh]) to project use; would need to plant 20 acres to mitigate	Would convert about 5 acres of southern coast live oak forest to project use so effects would be similar to Morrell Canyon but on a smaller scale; would only need 5 acres to mitigate
Special status wildlife	Would convert 80 acres of chamise chaparral and 20 acres of southern coastal live oak to project facilities	Would convert 95 acres of chamise chaparral and 5 acres of southern coastal live oak to project facilities
Mountain lion	Would remove 100 acres of suitable mountain lion habitat from Core B; project operation and maintenance would not likely increase disturbance or risk of interaction over levels that currently result from traffic on South Main Divide Road and use of Morgan Trail	Would remove 100 acres of suitable mountain lion habitat from Core B; project operation and maintenance would represent a very small increase in disturbance, because no trails currently provide for recreation at Decker Canyon site
Munz's onion	No suitable habitat at reservoir site; however, South Main Divide Road in vicinity passes through a soil type that is known to support occurrences of this species	Same
Developed recreation facilities	Footprint would not include Morgan Trail trailhead with minimal effect on users of the trailhead during construction but trail would need to be re-routed either temporarily or permanently depending on final design	Morgan Trail would not have to be rerouted and because visitation is low, increased traffic on South Main Divide Road would have minimal effect on Morgan trailhead users
Dispersed recreation	Would affect hang gliders using the 2 most suitable of the 9 launch sites and waterside setting offered at Lion Spring	Would avoid effects on two most popular hang glider launch sites
	Would eliminate a natural looking canyon with oak woodland vegetation and replace it with a reservoir surrounded by a chain link fence; inconsistent with Retention VQO	The existing aesthetic resources within Decker Canyon are subordinate to Morrell Canyon and construction effects associated with building a reservoir in this location would be less than those at the Morrell site; development of the alternative site would not build over a mature oak-woodland riparian area (Lion Spring)
Traffic	Would achieve a balance of excavation to fill within the entire project site	Same

Resource/Issue	Upper Reservoir Comparison	
	Morrell Canyon (co-applicants)	Decker Canyon (staff)
Cultural resources	Would destroy or damage four prehistoric archaeological sites	No known sites at Decker Canyon location

Resource/Issue	Powerhouse Site Comparison		
	Santa Rosa (Co-applicants and Staff)	Ortega Oaks	Evergreen
Area of effect	30-acre site, 20-acre laydown, 340 depth of excavation	58 acres, inclusive of laydown; 320 depth of excavation; groundwater 30 to 70 feet	75 acres, 30-acre laydown, 290 depth of excavation
	327,500 cubic yards (includes 207,000 from the powerhouse cavern; 35,000 from the transformer gallery; 32,000 from the surge shaft; 500 from the vent shaft; and 53,000 from the powerhouse access shaft)	There will be similar values to Santa Rosa but about 33 percent more excavation for the tailrace tunnel, which would be about 86,450 cubic yards since the Santa Rosa tailrace tunnel is 65,000 cubic yards; also, the depth of excavation is slightly less than that of Santa Rosa	There will be similar values to Santa Rosa but about 10 percent less excavation for the tailrace tunnel, which would be about 58,500 cubic yards since the Santa Rosa tailrace tunnel is 65,000 cubic yards; also the depth of excavation is less than that of Santa Rosa
Special status plants	Construction of the powerhouse could affect Coulter's matilija poppy	Construction of tunnel between upper reservoir and powerhouse could affect Coulter's matilija poppy	No rare plants identified in vicinity of Evergreen powerhouse location
Wetland and riparian habitat	Would affect about 0.4 acre of waters of the U.S. and state	Same as Santa Rosa.	Would affect less than one-tenth of an acre of waters of the U.S. and state
Special status wildlife	Would affect 30 acres of coastal sage scrub and 20 acres of non-native grassland	Would affect 53 acres of non-native grassland and 5 acres of coastal sage scrub	Would affect 55 acres of non-native grasslands and 20 acres of coastal sage scrub
Future recreation use	Location of substation and above ground transmission lines from this location would affect hang gliding activities	Would affect use of hang gliding landing site during construction; would provide formal hang gliding landing site following construction	Would displace informal disperse recreational use at site
Land Use and Property values	Would permanently change use to utility and recreation use and preclude residential use specified in General Plan; would purchase, modify, and reuse adjacent private property (Santa Rosa Mountain Villa apartments) and buffer would reduce effect on property values	No effect on adjacent residential property values at Ortega Oaks	Either raze or use current Lakeland Childcare Center at the Lakeland Village Plaza for construction office resulting in displacement of child-related businesses and purchase/raze one single family home

	Powerhouse Site Comparison		
Resource/Issue	**Santa Rosa (Co-applicants and Staff)**	**Ortega Oaks**	**Evergreen**
Aesthetics	The powerhouse would be underground but the substation would be visible from surrounding residential and commercial properties	The powerhouse would be underground but the substation would be visible from the heavily used Ortega Highway	Same as Santa Rosa.
Aesthetics (cont).	All construction activities within this area would conflict with the Partial Retention VQO designated by the USFS; these effects would be short term and last for the duration of the construction	Construction activity at Ortega Oaks site would be visible from the Ortega Highway and a small portion of Grand Avenue in Lakeland Village; two prominent viewpoints to commuters in the area	Similar effects on the aesthetic resources as described above with respect to the proposed Santa Rosa site
Cultural Resources	Would affect two historic sites and one prehistoric archaeological site; could affect two historic buildings (vibration) and penstock	Would directly affect one prehistoric site	No known sites at Evergreen location

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Area of effect	34.1 miles in length with 10.8 miles of temporary access roads and 5.2 miles of permanent access road.	33.7 miles in length with 9.3 miles of temporary access roads and 4.1 miles of permanent access road.
Fire suppression activities	Could interfere with USFS fire suppression activities.	Would avoid interference with USFS fire suppression activities.
Special status plants	Could affect Humboldt lily (Subarea 3); passes through potential habitat for Hammitt's clay-cress (Subarea 5). Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads and permanent maintenance roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Could affect Humboldt lily (Subarea 3); avoids potential habitat for Hammitt's clay-cress (Subarea 5). Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads and permanent maintenance roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.
Wetland and riparian habitat	Substation could affect about 1.1 acres of waters of the U.S. and state; effects from transmission towers would be minor as towers would be placed to avoid wetland and riparian habitat, but locations of access roads are unknown.	Same.

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Special status wildlife	Substations would affect 35 acres and transmission line towers would affect 30 acres of potential habitat for special status species. About 10.3 miles of temporary access roads would affect an estimated 15.7 acres, plus indirect effects of construction (edge effects) and potential for disturbance (e.g., poaching, harassment) and habitat damage during operation, if public access is not controlled. Permanent maintenance road would affect 5.2 miles (9.5 acres).	Substations would affect 35 acres and transmission line towers would affect 30 acres of potential habitat for special status species. About 9.3 miles of temporary access roads would affect an estimated 13.5 acres, plus indirect effects of construction (edge effects) and potential for disturbance (e.g., poaching, harassment) and habitat damage during operation, if public access is not controlled. Permanent maintenance road would affect 4.1 miles (7.5 acres).
Mountain lion	Would remove about 21.25 acres of suitable mountain lion habitat from Core B for about 85 towers; although mountain lions may use roads for travel, construction of 5.2 miles of permanent and 10.8 miles of temporary access roads would substantially increase the risk of disturbance (e.g., poaching, harassment) and habitat damage during project operation, if public access is not controlled. Would cross proposed linkage 1 at Temescal Wash, but tower placement should not interrupt travel corridor.	Same, except construction of 4 miles of permanent roads and 9.3 miles of temporary access roads would increase the risk of disturbance.
Bird/T-lines	Northern portion (Temescal Wash/Lee Lake) of line presents a high risk to waterfowl; central portion siting either underground or behind ridgeline would minimize risk to raptors; southern portion poses moderate risk of collision where it would cross major drainages.	Same.
Munz's onion	Would affect about 3.25 acres of potential habitat along the northern portion of the transmission line, about 23.2 acres at underground segment, and 35 acres at the northern substation. Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads and permanent maintenance roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same except would affect about 15.1 acres at underground segment.

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Slender-horned spine flower, San Diego ambrosia, California Orcutt grass, San Jacinto Valley crownscale	Occurrences at Temescal Wash at Indian Creek and Alberhill (Subarea 1); vernal pool habitat may exist along southern segment of alignment (Subarea 8). Tower construction could affect about 3.25 acres of potential habitat. Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same.
Thread-leaved brodiaea	Occurrences in the vicinity of Tenaja Creek (Subarea 7). Tower construction could affect about 0.25 acre of potential habitat. Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same.
Quino checkerspot butterfly	Substation and tower construction would affect 36.75 acres within designated critical habitat and about 0.75 acre of potential habitat. Temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same.
Arroyo toad and California red-legged frog	Construction of towers at Temescal Wash (north) and Los Alamos Canyon and Tenaja Creek (south) could adversely affect about 1.25 acres of potential arroyo toad habitat; but could avoid California red-legged frog habitat through siting. No effects on critical habitat for either species, but temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same.
Southwestern willow flycatcher and least Bell's vireo	Occurrences at Temescal Wash and Tenaja Creek; construction of towers could affect about 1 acre of potential habitat. Access roads could also adversely affect habitat; temporary access roads would increase risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same.

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Coastal California gnatcatcher	Construction of northern substation and towers could affect 38.5 acres of habitat within proposed critical habitat; access roads could also adversely affect habitat; temporary access roads would increase risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same.
Stephens' kangaroo rat	Construction of northern substation and towers could affect over 38.25 acres of habitat within the Stephens' Kangaroo Rat Fee Assessment Area and Lake Mathews-Estelle Mountain Core Reserve; temporary access roads could also affect habitat and would increase the risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same except includes access roads with northern substation and towers.
Developed recreation facilities	Would affect Wildomar OHV area and campground and these facilities would likely need to be closed during the first 2 years of construction (would be covered in the detailed site plan for construction)	Would avoid Wildomar OHV and campground locations; increased traffic due to construction would have minimal effects on users at these facilities
Dispersed recreation	Major effect on dispersed recreation would be in the vicinity of flight paths used by hang gliders; would present safety hazards; would result in considerable loss of hang gliding opportunities	Avoids some conflicts with hang gliding and USFS land classifications where transmission line construction would be inconsistent with USFS land management directives
Aesthetics	Towers and corridors would be visible in the foreground, middleground and background; construction activities within the Cleveland National Forest would result in features which conflict with the Retention and Partial Retention VQO standards	Would introduce line, colors, and textures into the landscape that do not currently exist and this would not be consistent with Retention VQO and would be slightly more visible from key viewpoints than the co-applicants' proposed alignment
	The linear features of the lines would contrast with the mountain and within the Cleveland National Forest be in conflict with the VQOs; the towers, conductors and resulting footprint of the corridor would be visible from highly traveled roadways	Same. Also because the lines would be lower down on the mountain they would be closer to Lakeland Village and more visible from the community of Lake Elsinore
Future recreation use	Transmission alignment would affect use by hang gliders of both launch and landing areas but avoids residential areas.	Would reduce conflicts with hang gliding uses.

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Roads	About 15.7 acres of temporary access roads could be revegetated; it is estimated that about 10.8 miles of road would be needed to service 32.1 miles of transmission line. About 5.2 miles (9.5 acres) would be needed for a permanent maintenance road along the underground segment.	About 13.5 acres of roads could be revegetated; public use could adversely affect habitat along 9.3 miles of road. About 4.1 miles (7.5 acres) would be needed for a permanent maintenance road along the underground segment.
Property values	Would adversely affect private property values up to 3 miles and 5 miles from where transmission alignment would cross or parallel private properties along northern portion and southern portion, respectively and would cross or be parallel within 0.25 mile about 8.6 miles of lands designated for residential development and may make these lands less desirable for development.	Would adversely affect private property values up to 4 miles and 9 miles from where transmission alignment would cross or parallel private properties along northern portion and southern portion, respectively and would cross or be parallel within 0.25 acres of about 15.9 miles of land designated for residential development under the General Plan and may make these location less desirable for development.
Land Use	Would be within 0.25 mile of 406 privately owned parcels and would cross or be adjacent to 6.1 miles of property zoned for residential use.	Would be within 0.25 miles of 452 privately owned parcels and would cross or be adjacent to 13.4 miles of property zoned for residential use.
Cultural resources	Northern segment could affect one prehistoric and two historic period archaeological sites; southern portion would not effect any known sites, but southern substation would affect one prehistoric site and sites in unsurveyed areas	Alignment has not been surveyed; could affect as yet unknown prehistoric sites

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Section 4
Developmental Analysis
Pages 4-1 through 4-28
FEIS

4.0 DEVELOPMENTAL ANALYSIS[77]

4.1 PROPOSED PROJECT ALTERNATIVES

4.1.1 Economic Assumptions

Under its approach to evaluating the economics of hydropower projects, as articulated in Mead Corporation, Publishing Paper Division (72 FERC ¶61,027, July 13, 1995), the Commission employs an analysis that uses present day price levels to compare the costs of the proposed project and likely alternative power sources, with no consideration for potential future inflation, escalation, or deflation beyond the license issuance date. The Commission's economic analysis provides a general estimate of the potential power benefits and costs of the project and its reasonable alternatives. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

For our economic analysis of the LEAPS Project, we used the assumptions, values, and sources shown in table 44. Information supporting the assumptions was provided in the Elsinore Valley MWD and Nevada Hydro (2005, 2004a).

Table 44. Assumptions for economic analysis of the LEAPS Hydroelectric Project.

Assumption	Value	Source
Dollar basis	2005	Staff
Period of analysis (years)	30	Staff
Term of financing (years)	20	Staff
Interest rate	9.50%	Co-applicants
Return on equity rate[a]	12%	
Discount rate[b]	9.50%	Staff
Debt:Equity ratio	70:30	Co-applicants
Depreciation	Modified Accelerated Cost Recovery Systems (150% early on)	Staff
Insurance rate[c]	0.23%	Co-applicants
Property tax rate[d]	1.73%	Co-applicants
Federal income tax rate	34%	Co-applicants
State income tax rate	8.84%	Co-applicants
Escalation after 2005	0%	Staff
Simple-cycle Combustion Turbine Parameters		
Heat rate (MMBTU/kWh)	10,000	Co-applicants
Cost of natural gas ($/MWh)	62.17	EIA (2005)
Variable O&M cost ($/MWh)	9.28	CEC (2003, as adjusted by staff)

[77] This is a standard section for Commission NEPA documents that does not necessarily reflect the methods or conclusions of the USFS staff on project economics. In this section, "we" means "Commission staff."

Assumption	Value	Source
Fixed cost component (capacity benefit) ($/MW)	$81,800	CEC (2003, as adjusted by staff)
Energy Value Parameters		
Off-peak energy value at south of path 15 ($/MWh)	$40.00	Platts (2005)
Peak energy value at south of path 15 ($/MWh) rate	$57.65	Platts (2005)
Higher demand peak energy value at south of path 15 ($/MWh)[e]	$69.18	Platts (2005)

[a] The co-applicants assumed an after tax return on equity of 15 percent. Recent rate makings in California led staff to choose a before tax return on equity of 12 percent for purposes of this analysis.

[b] The discount rate is assumed equal to the co-applicants' interest rate on debt.

[c] The co-applicants provided an insurance figure of $2,000,000, which staff divided by a project cost of $866,333,000.

[d] The co-applicants provided a property tax figure of $15,000,000, which staff divided by a project cost of $866,333,000.

[e] The ratio for higher demand peak energy value to peak energy value is 1.20.

4.1.2 Projected Energy Facility Costs for the No-action Alternative

The likely no-action alternative to the LEAPS Project that would provide a comparable amount of energy (1,560,000 MWh) and capacity is a 500-MW simple cycle turbine operating at a heat rate of about 10,000 Btu/kWh. Based on our review of recent energy prices in the state of California, such a project would have an annual cost of about $97.7 per MWh.

4.1.3 Projected Energy Facility Costs for the Co-applicants' Proposal

The co-applicants propose a pumped storage project with an upper reservoir located in Morrell Canyon and a powerhouse located at the Santa Rosa site. The detailed proposal is described in section 2.3. Staff independently reviewed the engineering costs associated with the LEAPS Project. Our review suggests that the co-applicants' estimated costs may be understated with regard to overburden excavation, disposal, and foundation preparation for the upper reservoir, the unit cost of tunnel excavation, the length of the steel-lined section, seismic design features for the penstocks, engineering and construction management, and the allowance provided for contingencies.

The co-applicants' upper reservoir cost estimate does not explicitly include items for overburden excavation and disposal, foundation preparation, the dam concrete face plinth, and reservoir lining and drainage measures. The concrete plinth may be included in the face concrete so we have not added costs for this component. Although the proposed concrete-faced rock fill dam is not one of the conceptual designs presented by the co-applicants in exhibit F (figure F-2), it is probably the most suitable dam type for a seismically active region and for a reservoir subject to the rapid filling and drawdown associated with a pumped storage facility. Our review questions the co-applicants' proposed use of a random earth fill dam because of the risk of settlement and cracking of the facing.

A concrete-faced rock fill dam would require excavation of the overburden down to sound bedrock over approximately two-thirds of the base. Assuming that the rock fill quantities shown in the co-applicants' cost estimate were measured to the bedrock surface and not to the ground surface, excavation of the 25 to 50 feet of overburden at the Morrell Canyon site could amount to 25 to 40 percent of the dam fill volume. It is unlikely that the overburden would yield significant quantities of material suitable for a concrete-faced rock fill dam and that the material would require disposal. Therefore, we have increased the co-applicants' cost estimate by adding $6,500,000 for overburden disposal (at Morrell Canyon only), $10,000,000 for additional excavation, foundation preparation, and preparation of the surface for lining, and $6,000,000 for additional quarrying and haulage of suitable fill.

The co-applicants show a unit cost for tunnel and penstock excavation of $125 per cubic yard. Recent contracts for hard rock tunneling suggest that a unit cost of $200 per cubic yard would be more realistic, particularly in view of the double handling required at the powerhouse shaft and the possibility that haulage to disposal would be required. The co-applicants show the penstock excavation for the steel-lined section of the tunnel as 600 feet. However, the drawings of the penstock alternatives and table of quantities presented in the license application indicate 2,500 feet of steel lining would be required. We are uncertain if the ground slope has been taken into account and suggest that the length of the steel-lined section should be at least 2,800 feet. Assuming two lengths of penstock, as the co-applicants propose, the total length of steel lining would be 5,600 feet, or about 10 times the length included in the co-applicants' cost estimate. We also question the co-applicants cost estimate for the tailrace tunnel through the rock-to-soft ground transition zone, and we are uncertain as to the co-applicants' intended diameter of the tailrace penstock. Constructing two tunnels of 125 feet length, 40 feet diameter, and 150 feet depth to permit safe crossing of this transition zone could add $13,600,000 to the cost of construction. Therefore, we have added $13,875,000 for the higher unit cost of excavation of the tunnel and penstock shafts, $51,000,000 for the longer length of the steel-lined section of the penstock, and $13,600,000 for the transition zone tunnels to the co-applicants' cost estimate. Additionally, we included $5,000,000 for seismic design features along the Willard Fault. We also determined that the co-applicants appear to have assumed three rather than two tunnels for purposes of estimating excavation costs. We have therefore reduced those costs by 1/6 or $25,722,000.

Finally, the co-applicants provided a contingency allowance of 20 percent in the license application, but only 2.28 percent in the revised cost estimate filed in response to the our request for additional information. The co-applicants' cost estimate does not appear to include costs for final designs, model tests, and construction management which would typically add 10 percent to overall project costs. The design is also at a very conceptual level. Contingencies of 30 percent and 15 percent would typically be added to the estimates for civil works, and mechanical and electrical equipment, respectively, at this stage of design development. Therefore, we have added contingencies of 30 percent and 15 percent to the co-applicants' cost estimate. Finally, we adjusted the financing and the other miscellaneous project cost categories to reflect the higher total capital costs.

We present our evaluation of these costs and the resulting total facility costs, excluding environmental measures, in table 45.

Table 45. Projected energy facility costs for the co-applicants' proposal (Morrell-Santa Rosa alternative, excluding environmental measures), including staff review items (*in italics*).

	Cost[a]	Subtotal
Site Preparation		
Co-applicants' cost	$15,425,000	$15,425,000

	Cost[a]	Subtotal
Upper Reservoir (Morrell Canyon)		
Co-applicants' cost	$59,275,000	
Overburden disposal	*$6,500,000*	
Additional excavation, foundation preparation and lining	*$10,000,000*	
Quarrying and additional haulage	*$6,000,000*	
Subtotal upper reservoir		$81,775,000
Tunnels and Shafts		
Co-applicants' cost	$154,332,000	
Lower total excavation length (reduction by one-sixth)[b]	*–$25,722,000*	
Higher unit cost of excavation	*$13,875,000*	
Additional steel liner costs	*$51,000,000*	
Willard Fault seismic mitigation	*$5,000,000*	
Transition zone shafts	*$13,600,000*	
Subtotal tunnels and shafts		$212,085,000
Powerhouse Cavern		
Co-applicants' cost	$62,570,000	$62,570,000
Powerhouse Auxiliary: Mechanical		
Co-applicants' cost	$5,725,000	$5,725,000
Powerhouse Auxiliary: Electrical		
Co-applicants' cost	$15,000,000	$15,000,000
Powerhouse Major Equipment		
Co-applicants' cost	$1,750,000	$1,750,000
Powerhouse Turbine Generators		
Co-applicants' cost	$64,200,000	$64,200,000
Lower Reservoir		
Co-applicants' cost	$17,448,000	$17,448,000
Subtotal major facilities		$475,978,000
Contingencies		
30 percent contingency on civil works	*$116,790,900*	
15 percent contingency on electrical-mechanical	*$13,001,300*	
Subtotal Contingencies		$129,792,200
Subtotal Without Transmission		$605,770,200
Transmission Line		
Co-applicants' cost	$309,654,000	$309,654,000
Additional staff contingency for transmission line	*$21,613,800*	

	Cost[a]	Subtotal
Construction Cost		$937,038,000
Elsinore Valley MWD Payment		
Co-applicants' cost	$1,329,000	
Additional payment associated with higher capital costs	*$450,600*	
Subtotal Elsinore Valley MWD payment		$1,779,600
Total Project Costs		$938,817,600
Feasibility study, associated site investigations, final design, model tests, and construction management	$93,703,800	$93,703,800
Project-related costs	$12,914,000	$12,914,000
Assumed environmental mitigation costs[c]	$0	$0
Interest during Construction		
Co-applicants' cost	$85,000,000	
Additional interest during construction with higher capital costs	*$36,489,800*	
Subtotal interest during construction		$121,489,800
Other Financing Costs		
Co-applicants' cost	$14,262,000	
Additional financing costs with higher capital costs	*$5,957,000*	
Subtotal other financing costs		$20,219,000
Financial Contingency		
Co-applicants' cost	$19,786,000	
Additional financing costs with higher capital costs	*$8,264,000*	
Subtotal financial contingency		$28,050,000
Development Fee		
Co-applicants' cost	$12,803,000	
Additional fees for higher capital costs	*$5,347,000*	
Subtotal development fee		$18,150,000
Subtotal Project Development Costs	$294,526,600	$294,526,600
Grand Total Project Costs		$1,233,344,200
Adjust to 2005 dollars		$1,283,171,300

[a] Costs are in 2003 dollars to permit a comparison with the co-applicants' cost estimate. Costs are converted to 2005 dollars in the final row.

[b] Lineal feet dimensions appear to reflect three rather than two conduit systems in Elsinore Valley MWD and Nevada Hydro (2005); however, additional analysis may be needed to resolve this issue including a complete review of all conduit quantities. Because there were changes in diameters as well we have made a one-sixth adjustment to the quantities rather than one-third.

[c] These costs are accounted for in a separate table.

4.1.4 Projected Energy Facility Costs for Staff Alternative

Commission staff and USFS staff suggest that a modified pumped storage project configuration with an upper reservoir located in Decker Canyon with the powerhouse located at Santa Rosa site may reduce environmental effects while maintaining a comparable facility cost. This alternative is described in section 2.6. Staff has assumed that the engineering review conducted for Morrell Canyon alternative would also apply to Decker Canyon alternative, although the details of the omitted items might be somewhat different. Therefore we have included the same set of additional cost estimates to the co-applicants' cost estimate. In addition we applied the cost differentials developed by the co-applicants for each of the construction elements in response to our AIR (Elsinore Valley MWD and Nevada Hydro, 2005). We present our evaluation of these costs and the resulting total facility costs, excluding environmental measures, in table 46.

Table 46. Projected energy facility costs for the staff alternative (Decker-Santa Rosa alternative excluding environmental measures), including staff review items (*in italics*).

	Cost[a]	Subtotal
Site Preparation		
Co-applicants' cost	$15,425,000	$15,425,000
Upper Reservoir (Decker Canyon)		
Co-applicants' cost	$80,021,300	
Additional excavation, foundation preparation and lining	*$10,000,000*	
Quarrying and additional hauling	*$6,000,000*	
Subtotal upper reservoir		$96,021,300
Tunnels and Shafts		
Co-applicants' cost	$170,065,000	
Lower total excavation length (reduction by one-sixth)[b]	*–$28,344,200*	
Higher unit cost of excavation	*$13,875,000*	
Additional steel liner costs	*$51,000,000*	
Willard Fault seismic mitigation	*$5,000,000*	
Transition zone shafts	*$13,600,000*	
Subtotal tunnels and shafts		$225,195,800
Powerhouse Cavern		
Co-applicants' cost	$61,410,000	$61,410,000
Powerhouse Auxiliary: Mechanical		
Co-applicants' cost	$5,725,000	$5,725,000
Powerhouse Auxiliary: Electrical		
Co-applicants' cost	$15,000,000	$15,000,000
Powerhouse Major Equipment		
Co-applicants' cost	$1,750,000	$1,750,000

	Cost[a]	Subtotal
Powerhouse Turbine Generators		
Co-applicants' cost	$64,200,000	$64,200,000
Lower Reservoir		
Co-applicants' cost	$17,448,000	$17,448,000
Subtotal major facilities		$503,335,100
Contingencies		
30 percent contingency on civil works	*$124,998,000*	$124,998,000
15 percent contingency on electrical-mechanical	*$13,001,300*	$13,001,300
Subtotal Contingencies		$137,999,300
Subtotal Without Transmission		$641,334,400
Transmission Line		
Co-applicants' cost	$308,794,000	$308,794,000
Additional staff contingency for transmission line	*$21,553,800*	$21,553,800
Elsinore Valley MWD Payment		
Co-applicants' cost	$1,329,000	
Additional payment associated with higher capital costs	*$516,400*	
Subtotal Elsinore Valley MWD payment		$1,845,400
Total Project Costs		
Feasibility study, associated site investigations, final design, model tests, and construction management	*$93,703,800*	$93,703,800
Project-related costs	$12,914,000	$12,914,000
Assumed environmental mitigation costs[c]	$0	$0
Interest during Construction		
Co-applicants' cost	$85,000,000	
Additional interest during construction with higher capital costs	*$40,926,000*	
Subtotal interest during construction		$125,926,000
Other Financing Costs		
Co-applicants' cost	$14,262,000	
Additional financing costs with higher capital costs	*$5,728,000*	
Subtotal additional financing costs		$19,990,000
Financial Contingency		
Co-applicants' cost	$19,786,000	
Additional financing costs with higher capital costs	*$7,947,000*	
Subtotal financial contingency		$27,733,000
Development Fee		
Co-applicants' cost	$12,803,000	
Additional fees for higher capital costs	*$5,142,000*	

	Cost[a]	Subtotal
Subtotal development fee		$17,945,000
Subtotal Project Development Costs	$301,676,200	$301,676,200
Grand Total Project Costs		$1,275,203,700
Total Adjusted to 2005 dollars		$1,326,722,000

[a] Costs are in 2003 dollars to permit a comparison with the co-applicants' cost estimate. Costs are converted to 2005 dollars in the final row.

[b] Lineal feet dimensions appear to reflect three rather than two conduit systems in Elsinore Valley MWD and Nevada Hydro (2005); however, additional analysis may be needed to resolve this issue including a complete review of all conduit quantities.

[c] These costs are accounted for in a separate table.

4.2 PROJECTED ENVIRONMENTAL COSTS

Staff developed estimates for the costs of environmental mitigation measures based on information provided by the co-applicants and agencies, and on staff experience with similar hydroelectric projects in California (refer to table 47). The details of the co-applicants' proposal, staff alternative, and agency recommendations are included in section 2.

Several of the items shown in table 47 appear similar. In these cases, the co-applicants may have proposed one measure to address a particular resource concern, an agency may have specified or recommended a slightly different measure addressing the same issue, and staff may have further modifications. The column titled "Staff Adopted" indicates the measures that would be included in the staff alternative.

The co-applicants estimated environmental mitigation capital costs at $14,450,000 (Elsinore Valley MWD and Nevada Hydro, 2005), including $6,450,000 for parks and recreation development and $8,000,000 for other environmental measure in 2003 dollars. Many of the co-applicants' environmental measures were not priced individually and had to be estimated by staff. We have footnoted those costs in table 47. We adjusted those costs by a factor or 1.04 to account for the effects of inflation between 2003 and 2005. After taking into account the unpriced measures, we estimate the annualized cost of environmental measures for the co-applicants' proposal to be about $13,681,100, based on an estimated capital cost of $84,201,100 and combined with $2,005,700 in operations and maintenance costs.

The estimated annualized cost of environmental measures for the staff alternative is about $12,207,500 based on an estimated capital cost of $72,159,200 combined with $2,279,100 in operations and maintenance costs.

Staff did not develop a full alternative for the Morrell Canyon location; however, we note that, should such an alternative be developed, several additional measures would likely be required by staff and agencies. Staff anticipates, for example, that a more sophisticated liner system, coupled with an upstream collection system and underdrain collection system for several known springs would potentially add in excess of $18,000,000 to the environmental costs. Additional measures such as relocation of the Morgan Trail and additional lands mitigation as shown in table 47 would further narrow the difference in cost between the Morrell and Decker upper reservoir locations.

None of the environmental measures proposed by the co-applicants, staff or agencies were deemed to have significant effects on energy generation or dependable capacity.

Table 47. Summary of capital and one-time costs, annual costs, and total annualized costs of environmental measures proposed by the co-applicants, included in the staff alternative, and recommended by others for the LEAPS Project. (Sources: Elsinore Valley MWD and Nevada Hydro, 2005, 2004a, and 2004b)

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
Soils and Geology						
1. Retain board of three consulting geologists/engineers	Co-applicants	$500,000		$70,500	Yes	a
2. Conduct additional geotechnical studies	Co-applicants	$1,000,000		$141,100	Yes	
3. Prepare erosion control plan prior to construction and implement during construction.	Co-applicants	$230,000		$32,500	Yes	
4. Prepare and implement an erosion control plan over the term of the license	USFS, Riverside County Flood Control District	$70,000		$9,900	Yes	
5. Implement erosion control during construction and operation	Co-applicants	$1,922,900	$30,400	$301,700	Yes	
6. Implement erosion control during construction and operation including the staff alternative transmission alignment	Staff	$40,100	$1,200	$6,900	Yes	
7. Develop and implement a plan and design for construction of a system that will automatically detect a conduit or penstock failure and immediately shut off flow in the conduit or penstock at the headworks in the event of such a failure	Co-applicants	$91,000		$12,800	Yes	a
8. Develop a plan for clearing the reservoir area	Co-applicants	$35,000		$4,900	Yes	
9. Develop a plan to revegetate disturbed areas with native plant species beneficial to wildlife	Co-applicants	$30,000		$4,200	Yes	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
Water Resources (Quantity)						
10. Pay an annual lake management fee to Elsinore Valley MWD to maintain Lake Elsinore at 1,240 feet msl or above	Co-applicants		$1,872,000	$1,872,000	Yes	
11. Develop and implement a revised lake operating plan for Lake Elsinore, addressing increased minimum lake levels, flood control implications, and water supply issues	Staff	$200,000		$28,200	Yes	
12. Develop and implement a plan for the installation of drainage and flood control measures and any water detention structures to control storm runoff over the term of any license issued for the project	Co-applicants	$100,000		$14,100	Yes	a
13. Incremental additional program associated with upstream and seepage collection and delivery system and improved double liner system at Morrell Canyon	Staff	$18,000,000		$2,539,800	No	b
14. Develop and implement an upper reservoir and water conduit monitoring program to assess the effects of the upper reservoir liner and seepage collection systems, shafts, and tunnels on the groundwater levels and water quality, including installation of perimeter wells designed to establish groundwater levels and water quality prior to construction and to detect any changes after construction	Co-applicants	$500,000		$70,500	Yes	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
15. Include specific remediation measures in the upper reservoir and water conduit monitoring program to allow immediate action to be taken if water or non-native aquatic species are released from the upper reservoir into the San Juan Creek drainage	Interior, staff				Yes	c
16. Include specific provisions in the upper reservoir and water conduit monitoring program for groundwater exploration and aquifer characterization, consultation on groundwater inflow criteria, and to monitor groundwater levels during the construction and operation of the water conduits including the tunnels and penstocks that convey water between the upper reservoir and the powerhouse for 10 years or longer, if necessary, specifying remedial actions if monitoring reveals changes in groundwater or seepage into the tunnels	Staff and USFS	$110,000	$19,200	$34,700	Yes	d
17. Develop and implement a surface water resources manage plan to control and monitor project-related effects on water resources that support riparian vegetation on National Forest System lands	USFS	$200,000	$30,000	$58,200	Yes	
Water Resources (Quality)						
18. Develop and implement water quality plan to monitor DO and temperature in Lake Elsinore and Temescal during construction and operation	Co-applicants	$115,000	$15,000	$31,200	Yes	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
19. Develop and implement a plan to determine the toxicity of sediments in Lake Elsinore and to provide for proper handling and disposal if toxins are identified	Staff	$50,000		$7,100	Yes	
20. Prepare a hazardous substances spill prevention and control plan	Co-applicants USFS	$10,000		$1,400	Yes	
Aquatic Resources						
21. Employ a qualified specialist to monitor construction activities in the aquatic environment	Co-applicants	$130,000		$18,300	Yes	
22. Develop and implement a detailed plan for environmental monitoring during construction by a qualified specialist for aquatic and terrestrial resources	USFS	$20,000		$2,800	Yes	
23. Establish appropriate setbacks from streams, avoid sediment discharges, and implement BMPs to avoid conflicts with the USFS steelhead recovery efforts in San Mateo Creek	Co-applicants			$0	Yes	e
24. Remove/reduce fish population via netting or rotenone poisoning during construction	Co-applicants	$50,000		$7,100	No	
25. Design and install intake screens for fish consistent with NMFS	Co-applicants	$8,000,000	$10,000	$1,138,800	No	
26. Consult with FWS and CDFG to develop intake fish screen criteria as specified by NMFS and modified, if necessary, to ensure screening addresses bass and crappie and other resident fish species in Lake Elsinore	FWS	$10,000		$1,400	No	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
27. Establish limits of flow velocity rates of 1.5 to 1.8 feet per second at underwater intakes to reduce entrainment of sport fish	Co-applicants			$0	Yes	f
28. Monitor sport fish for entrainment and mortality for 1 year	Co-applicants		$9,300	$9,300	Yes	d
29. Monitor sports fish for entrainment and mortality for 1 year and once every 5 years over the term of the license and, based on the monitoring results, develop and implement a plan to mitigate effects on sport fish	Staff	$200,000	$33,800	$62,000	Yes	
30. Test behavioral avoidance devices if entrainment is significant	Co-applicants	$250,000	$9,100	$41,300	No	d,g
Terrestrial Resources						
32. Employ a qualified specialist to monitor construction activities in the terrestrial environment	Co-applicants	$300,000		$42,300	Yes	
33. Conduct wetland delineations and prepare a habitat mitigation and monitoring plan for Corps, CDFG, and USFS approval	Co-applicants	$60,000	$6,700	$15,200	Yes	d
34. Develop and implement plan to prevent and control weeds	Co-applicants	$100,000		$14,100	Yes	
35. Consult with the USFS to develop and implement a vegetation and invasive weed management plan	USFS	$20,000	$20,000	$22,800	Yes	
36. Develop a Lake Elsinore monitoring and remediation plan to eliminate or reduce impacts to nesting shorebirds, waterfowl, and other birds	Interior	$20,000	$20,000	$22,800	Yes	i

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
37. Design and construct power line in accordance with APLIC et al. (1996)	Co-applicants, USFS	$20,000		$2,800	Yes	
38. Develop and implement bird-power line protection plan, following designs in the APLIC and FWS (2005) guidelines; develop and implement long-term avian protection plan	Staff		$20,000	$20,000	Yes	i
39. Conduct additional pre-construction special status plant and animal surveys for compliance with the Multi-Species HCPs.	Interior	$100,000		$14,100	Yes	
40. For Morrell Canyon, mitigate loss of special status habitats at 2:1 ratio (oak woodland 40 acres; coastal sage scrub 62 acres)	Co-applicants	$2,060,000	$2,100	$204,100	No	d,g
41. For Morrell Canyon, evaluate effects in terms of the Multi-Species HCP; mitigate based on equivalency analysis, minimum 1:1 ratio for habitat loss (203.5 acres)	Interior	$3,242,500	$4,200	$325,200	No	d,g
42. For Decker Canyon, evaluate effects in terms of the Multi-Species HCP; mitigate based on equivalency analysis, minimum 1:1 ratio for habitat loss (207.5 acres)	Interior	$3,212,500	$4,200	$322,300	Yes	d,g
43. For Morrell, mitigate any permanent loss of habitat on National Forest System lands at a minimum 1:1 ratio for riparian oak woodland, coastal sage scrub, and habitats that support listed species	USFS	$2,665,000	$3,500	$268,100	No	d,g

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
44. For Decker Canyon, mitigate any permanent loss of habitat on National Forest System lands at a minimum 1:1 ratio for riparian oak woodland, coastal sage scrub, and habitats that support listed species	USFS	$2,635,000	$3,400	$265,100	No	d,g
45. Prepare and implement a habitat mitigation plan to meet habitat objectives and standards and for additional enhancement activities to offset the direct effects of construction	USFS	$20,000		$2,800	Yes	
46. Provide $500 per acre for project effects within Stephen's Kangaroo Rat Assessment Area (38.25 acres)	Co-applicants	$19,100		$2,700	Yes	
47. Annually review list of special status species	USFS	$10,000	$4,800	$6,200	Yes	g
48. Provide annual employee awareness training regarding special status plants and animals	USFS	$10,000	$10,000	$11,400	Yes	
49. Consult with FWS in developing final designs and measures to protect fish and wildlife	Interior	$10,000	$2,000	$3,400	Yes	j
50. In emergency, take immediate action to prevent or minimize further loss of fish and wildlife	Interior			$0	No	
51. Commission include ESA reopener provision in license	Interior			$0	No	k

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
Recreation						
52. Prepare a detailed plan of construction sites and laydown areas relative to recreational safety.	Co-applicants, USFS			$0	Yes	l
53. Implement safety during construction plan and include daily inspections for fire plan compliance, public safety, and environmental protection	USFS				Yes	l
54. Install fencing around upper reservoir	Co-applicants	$74,000	$2,200	$12,600	Yes	
55. Provide interpretive signage at upper reservoir site	Co-applicants	$7,000	$200	$1,200	Yes	
56. Construct and maintain an ancillary structure to complement the firefighters memorial (visitors information center) at a USFS-site off Ortega Highway	Co-applicants	$49,900		$7,000	Yes	a
57. Grade/contour/prepare site at the construction laydown area or another area for future development by USFS or another entity as determined by the USFS	Co-applicants	$18,700		$2,600	Yes	
58. Develop recreation facility at the construction laydown area for upper reservoir and/or an alternate location	USFS	$144,200	$4,000	$20,100	Yes	d,g
59. Relocate portions of Morgan Trail if the upper reservoir is in Morrell Canyon	Co-applicants	$18,700		$2,600	No	a
60. Develop and implement a recreation plan, including a botanical garden/community park at Santa Rosa or Evergreen powerhouse sites	Co-applicants	$5,610,800		$678,500	Yes	g
61. Provide public tours at powerhouse at any of the powerhouse locations	Co-applicants		$18,700	$18,700	Yes	a

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
62. Develop a hang glider landing site and provide for a community park if powerhouse is located at Ortega Oaks sites and a northern transmission alignment is selected.	Co-applicants	$5,610,800		$678,500	No because this alternative location not selected	
63. Implement recreation plan providing for land transfer, development of recreation facility and O&M funding for community park development and/or hang gliding facility	Staff		$125,400	$125,400	Yes	d
64. Develop and implement fish stocking program for Lake Elsinore	Co-applicants	$10,000	$20,000	$21,400	Yes	
Land Use and Aesthetic Resources						
65. Acquire easements, fee simple or leasehold interests in lands needed for project purposes by voluntary sale or conveyance to extent possible.	Co-applicants	$70,000		$9,900	Yes	m
66. Acquire and demolish or modify the multifamily residences nearest the proposed powerhouse at Santa Rosa.	Co-applicants				No	l
67. Prepare and implement visual resources plan	Co-applicants	$20,000		$2,800	No	a
68. Prepare and implement a scenery conservation plan to achieve the greatest degree of consistency with USFS High Scenic Integrity Objective	USFS	$20,000		$2,800	Yes	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
69. Develop, in consultation with Riverside County, and implement a plan to avoid effects to existing drainage facilities and to control any project-related drainage.	Co-applicants			$0	Yes included in plan for drainage and flood control measures	l
70. Additional excavation at Decker Canyon in lieu of trucking fill material uphill from powerhouse	Staff	$5,193,500		$732,800	Yes	
71. Achieve a balance of the excavation and fill materials at the Decker Canyon on reservoir site through additional excavation and dispose of all excavated material from all other project facilities off site	Co-applicants				Yes	l
72. Participate in installation of traffic signal at Grand Avenue / Ortega Highway intersection	Co-applicants			$0	No	n
73. For the Ortega Oaks power house location, dedicate and improve any additional rights-of-way	Co-applicants			$0	No	n
74. Develop and implement traffic management and control plans to address construction and access to and from the active construction sites	Co-applicants	$100,000	$10,000	$24,100	Yes	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
75. Install temporary roads on the National Forest System lands only with USFS approval and according to USFS policies, and remove, re-contour, and re-vegetate roads following construction except where the USFS authorizes continued use of the roads for transmission line maintenance	Co-applicants				Yes	1
76. Consult with the USFS to develop a project road and traffic management plan on National Forest System lands	USFS	$10,000		$1,400	Yes	
77. Consult with appropriate authorities to develop road and traffic management plan on non-National Forest System lands for USFS roads	Staff	10,000		$1,400	Yes	
78. Transmission tower placement plan	Staff	$100,000		$14,100	Yes	
79. Helicopter installation costs for co-applicants' proposed transmission alignment	Co-applicants	$1,368,900		$193,200	No	
80. Helicopter installation costs for staff alternative transmission alignment	Staff	$1,799,600		$253,900	Yes	
81. Incremental transmission alignment road costs for staff alternative transmission alignment	Staff	–$183,900		–$25,900	Yes	
82. Incremental underground powerline costs for the co-applicants' proposed alignment (based on an incremental cost of $10,400,000 per mile including contingency)	Co-applicants	$60,680,100		$8,561,900	No	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
83. Incremental underground powerline costs for the staff alternative transmission alignment (based on an incremental cost of $10,400,000 per mile including contingency)	Staff	$48,999,800		$6,913,800	Yes	
84. Comply with noise element of Riverside General Plan and other applicable codes and standards	Co-applicants				Yes	l
Cultural Resources						
85. Consult with SHPO and the USFS at least 180 days prior to commencement of any land-clearing or land-disturbing activities	Co-applicants	$10,000		$1,400	Yes	
86. Stop all land-clearing and land-disturbing activities in the vicinity of such properties where unidentified archaeological or historic properties are discovered during construction and consult with the SHPO or the USFS on USFS lands	Co-applicants	$120,000		$16,900	Yes	a
87. Implement measures proposed in the draft HPMP filed with the Commission.	Co-applicants	$420,000		$59,300	Yes	
88. Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources.	Co-applicants	$80,000		$11,300	Yes	
89. Prepare any recovered fossil remains to the point of identification, and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum	Co-applicants	$20,000		$2,800	Yes	

Measure	Entity	Capital and One Time Costs ($2005)	Annualized Operations and Maintenance Cost ($2005)	Total Annualized Cost ($2005)	Staff Alternative	Table Notes
90. Revise draft HPMP in consultation with the USFS and file a final HPMP for Commission approval within 1 year of any license issuance.	Staff	$20,000		$2,800	Yes	
Total Co-applicants' Proposed Measures		$84,201,100	$2,005,700	$13,681,100		
Total Staff Adopted Measures		$72,159,200	$2,279,100	$12,207,500		

[a] These costs are staff estimates based on the co-applicants' description of the measure.

[b] This cost applies to the liner in the upper reservoir only at the Morrell Canyon location.

[c] Cost of developing remediation measures assumed to be included in staff measure, item no. 16.

[d] This measure includes O&M costs that are not constant over our 30-year economic evaluation period that follows construction.

[e] Cost for this measure is assumed to be included in the development and implementation of the co-applicants' erosion control plan.

[f] We expect that the costs associated with the limits for velocities are included in the fish screen cost estimate.

[g] This measure includes capital costs incurred in other than year 1 or during original construction.

[h] We assume that the co-applicants will address drawdowns in the lake management plan.

[i] Staff has added monitoring to this Interior-proposed measure.

[j] We assume that this consultation is limited to project design.

[k] An ESA reopener is a legal matter that will be addressed by the Commission in any license that may be issued for the project.

[l] We assume this cost would be included in the co-applicants' overall construction cost.

[m] We assume this cost would be included in the co-applicants' overall construction cost except for land easements associated with the new transmission alignments which amounted to 28 acres times $2,500.

[n] We assume these costs are included in the co-applicants' costs for managing traffic to and from the construction sites.

We group expenditures on environmental measures by resource area and compare costs of the staff alternative to those of the co-applicants in table 48.

Table 48. Comparison of annualized costs of environmental measures by resource area and overall project costs. (Source: Staff)

Environmental Protection Measure	Co-applicants' Proposal (2005 dollars)	Co-applicants' Proposal (2005 dollars per MWh)	Staff Alternative (2005 dollars)	Staff Alternative (2005 dollars per MWh)
Soils and geology	$567,700	$0.36	$584,500	$0.37
Water resources				
Quantity	$1,956,600	$1.25	$2,077,700	$1.33
Quality	$32,600	$0.02	$39,700	$0.03
Aquatic	$1,214,800	$0.78	$92,400	$0.06
Terrestrial	$281,200	$0.18	$500,100	$0.32
Recreation	$744,600	$0.48	$887,500	$0.57
Land use and aesthetic resources	$8,791,900	$5.64	$7,931,100	$5.08
Cultural resources	$91,700	$0.06	$94,500	$0.06
Total Environmental	$13,681,100	$8.77	$12,207,500	$7.83

4.3 PROJECTED ENERGY COSTS

Both the co-applicants' proposal and the staff alternative would require a comparable amount of energy to power the pumps that raise water from the lower reservoir to the upper reservoir. In their most recent filing (Elsinore Valley MWD and Nevada Hydro, 2005), the co-applicants' estimate that 1,872,000 MWh of pumping energy would be required to generate 1,560,000 MWh of project energy. The co-applicants' did not refile the "Operational Spreadsheets" (Elsinore Valley MWD and Nevada Hydro, 2004a, exhibits A, B, C, D, F, and G) based on this slightly revised estimate, so we have assumed average values corresponding to the same 60 hours of turbine operation and 66 hours of pumping operation to analyze the energy costs associated with the LEAPS Project. Table 49 includes our analysis of the "Maximum Generation Scenario" as described in section 2.1.3. The co-applicants did not provide this type of analysis in its license application (Elsinore Valley MWD and Nevada Hydro, 2004a) or subsequent filings. Our analysis assumes operation over a typical week that includes peak hours from 6:00 a.m. through 10 p.m. (16 hours per week day). We assume that half of these hours are extra high demand periods and classify them as higher demand peak hours such as those that might be served by a rapidly dispatchable pumped storage hydro project. Energy generated during these hours is estimated to have a 20 percent premium compared to regular peak hours. The remaining hours (10:00 p.m. through 6:00 a.m.) are classified as off-peak hours as are all weekend hours. We recognize that these definitions are subject to change over time and that there may be seasonal differences between summer and winter periods. Furthermore, our analysis may be slightly optimistic since several holidays throughout the year

Table 49. Analysis of the pumping and turbining weekly cycles for the LEAPS Project. (Source: Staff)

Item	Hours	Energy Value ($2005)	Pumping Energy Required (MWh)	Cost of Pumping Energy ($2005)	Average Pumped Storage Generation (MWh)	Value of Pumped Storage Generation ($2005)
Higher demand peak hours	40	69.18	--	--	20,000	1,383,600
Peak hours	40	57.65	10,909	503,100	10,000	576,500
Off-peak hours	88	40.00	25,091	1,090,900	--	--
Total or average	168	51.15	36,000	1,594,000	30,000	1,960,100
Yearly			1,872,000	82,889,400	1,560,000	101,925,200

are classified as off-peak periods. Additionally, it may take up to an hour to switch from the turbining cycle to the pumping cycle. We have not included that level of refinement in our analysis.

We determine that over a typical week, the cost of generation to provide pumping energy during the periods specified by the co-applicants would be $1,594,000. On an annual basis this would amount to $82,889,400.

4.4 ECONOMIC COMPARISON

Based on the costs developed in sections 4.1 through 4.3, we estimate the total capital and annual costs for the co-applicants' proposal as shown in table 50. The co-applicants' proposal consists of the Morrell Canyon/Santa Rosa project configuration with staff's cost estimate adjustments, the TE/VS Interconnnect Project, and the co-applicants' proposed environmental measures. Similarly, we show the total costs for the staff alternative in table 51. The staff alternative consists of the Decker Canyon/Ortega project configuration, the mid-slope transmission alignment with up-slope segment, and environmental measures.

Table 52 compares the power value, annual costs, and net benefits of the no-action alternative, co-applicants' proposal and the staff alternative for the Leaps Project. The decrease in net benefits between the co-applicants' proposal and the staff alternative is about $2.99 per MWh.

Within the limits of the preliminary design of the project components, the overall costs of the co-applicants' proposed action and the staff alternative are within the same order of magnitude, although the staff alternative would be more costly. As shown in table 51, and discussed in section 4.4, the additional environmental measures and cost estimates would not significantly affect the project economics. During the final design phase of the project, the co-applicants would provide the engineering and cost estimate information to the Commission staff necessary to review the final design of each of the project components.

Table 50. Summary of projected annual costs and capital costs under the co-applicants' proposal. (Source: Staff)

Cost	Capital and One-time Costs	Annual Costs, Including O&M	Total Annualized Costs
Project cost excluding environmental measures	1,283,171,300		181,054,300
Environmental measures	84,201,100	2,005,700	13,681,100
Licensing cost	12,000,000		1,693,200
Total net investment	1,379,372,400		196,428,600
Materials and supplies		1,435,200	
Energy for pumping[a]		82,889,400	
Dam Safety Program		100,000	
Insurance[b]			
General and Administrative		561,100	
O&M contingency[c]		1,920,000	
Subtotal operations and maintenance costs		86,905,700	86,905,700
FERC fees[c]		1,200,000	1,200,000
Subtotal annual costs			88,105,700
Total			284,534,300

[a] Pumping energy is based on average energy values at SP-15 for August 2004 through July 2005, assuming pumping during all off peak hours (10 p.m. through 6 a.m., Monday through Friday including on into the next day) and additional pumping operations during 16 hours (4 hours Monday through Thursday) of regular peak hours in the final EIS plus 10 off-peak hours on Saturday.

[b] Insurance costs are rolled into the annualized cost of the total net investment based on the co-applicants' estimate of 0.23 percent of the overall project cost.

[c] We estimate FERC fees at $1,200,000. Additional fees may be added for the use of federal lands. We have reduced the co-applicants' O&M contingency by this amount.

Table 51. Summary of projected annual costs and capital costs under the staff alternative. (Source: Staff)

Cost	Capital and One-time Costs	Annual Costs, Including O&M	Total Annualized Costs
Project cost excluding environmental measures	1,326,704,600		187,196,800
Environmental measures	72,159,200	2,279,100	12,207,500
Licensing cost	12,000,000		1,693,200
Total net investment	1,410,863,800		201,097,500
Materials and supplies		1,435,200	
Energy for pumping[a]		82,889,400	
Dam Safety Program		100,000	
Insurance[b]			
General and administrative		561,100	
O&M contingency[c]		1,920,000	
Subtotal operations and maintenance costs		86,905,700	86,905,700
FERC fees[c]		1,200,000	1,200,000
Subtotal annual costs			88,105,700
Total			289,203,200

[a] Pumping energy is based on average energy values at SP-15 for August 2004 through July 2005, assuming pumping during all off peak hours (10 p.m. through 6 a.m., Monday through Friday including on into the next day) and additional pumping operations during 16 hours (4 hours Monday through Thursday) of regular peak hours in the final EIS plus 10 off-peak hours on Saturday.

[b] Insurance costs are rolled into the annualized cost of the total net investment based on the co-applicants' estimate of 0.23 percent of the overall project cost.

[c] We estimate FERC fees at $1,200,000. Additional fees may be added for the use of federal lands. We have reduced the co-applicants' O&M contingency by this amount.

Table 52. Summary of annual net benefits for the no-action alternative, co-applicants' proposal and staff alternative for the LEAPS Project. (Source: Staff)

	No Action	Co-applicants' Proposal	Staff Alternative
Dependable capacity (MW)	500	500	500
Capacity benefit ($/MW)	81,800	81,800	81,800
Annual capacity benefit ($2005)	40,900,000	40,900,000	40,900,000
Generation (MWh)	1,560,000	1,560,000	1,560,000
Annual energy benefits ($2005)	89,932,200	101,923,100	101,923,100
Dollars/MWh	57.65	65.34	65.34
Overall benefits ($2005)[a]	130,832,200	142,823,100	142,823,100
Dollars/MWh	83.87	91.55	91.55
Annual cost ($2005)	152,370,800	284,534,300	289,203,200
Dollars/MWh	97.67	182.39	185.39
Annual net benefit ($2005)[b]	–21,538,600	–141,711,200	–146,380,100
Dollars/MWh	–13.81	–90.84	–93.83
Change in annual net benefit relative to no-action alternative ($2005)		–120,172,600	–124,841,500
Dollars/MWh		–77.03	–80.03

[a] The Nevada Hydro Company has estimated combined transmission and pumped storage benefits as high as $178,000,000 per year (letter from R. Wait, Vice President, Nevada Hydro, Vista, CA, to M. Salas, Secretary, the Commission, Washington, DC, dated June 8, 2006) using a method where cost savings (i.e., benefits) would rise over time. Our standard approach is to use a constant dollar method as described in section 4.1.1.

[b] We have estimated net benefits based on time of day pricing as described in section 4.3. The net benefit for the no-action alternative is negative because under current economic assumptions the benefit from our assumed time of day pricing would not fully cover the estimated costs of a simple-cycle combustion turbine project.

4.5 COST OF ALTERNATIVE TRANSMISSION ALIGNMENTS

In this NEPA document, staff evaluated two transmission line alternatives in detail (as described in section 2) including:

- Revised co-applicants' proposed transmission alignment as described in this document
- Staff alternative transmission alignment as described in this document.

These two alternatives have a slightly different lengths and construction characteristics. The USFS is also evaluating the TE/VS Interconnect Project and alternatives in a separate document. Commission staff have analyzed the costs associated with the co-applicants' proposed transmission alignment and two alternative alignments. Table 53 summarizes the construction costs and characteristic for the three alternatives.

Table 53. Summary of construction costs and characteristics for the co-applicants' proposed and staff alternative transmission alignments. (Source: Staff)

Alignment	Overall Length (miles)	Buried Length (miles)	Helicopter Installed Length (miles)[a]	Conventional Transmission Line (miles)	Access Road Length (miles)[b]	Total Construction Cost ($2005)[c]
Revised co-applicants' proposed transmission alignment	32.1	3.2	24.9	4.0	10.8	$393,316,800
Staff alternative transmission alignment	31.7	2.1	25.5	4.1	9.3	$381,082,875

[a] This length results in additional cost for construction of transmission lines by helicopter in areas where slopes are greater the 15 percent.

[b] We assume that access road lengths are equal to 1.5 times the transmission line length and are required in areas with slopes less than or equal to 15 percent.

[c] Total construction costs include the applicants estimated transmission lines costs and contingency, additional staff contingency and other major construction items such as additional access roads, buried lines or helicopter aided construction. Certain environmental measures associated with erosion control, easements, and terrestrial lands mitigation, etc. are not included in this cost.

[d] We assume the co-applicants may have accounted for up to 50 percent of the helicopter aided construction costs in their cost estimate and have added an additional $1,984,100 for possibly unaccounted helicopter installation costs. We assume a transmission line tower every 1000 feet and that incremental helicopter costs would amount to one-half of $30,761 per tower.

[e] We assume that shorter line lengths in the area where slopes are greater than 15 percent result in saving of $30,761 per tower eliminated or in this case 3 towers or $92,300. We also account for longer access roads at $125,000 per mile or in this case $337,500. Because the overall transmission line is 1.2 miles longer, we also estimate an additional construction cost of $2,496,000.

[f] An additional 2-mile segment connects the main transmission line to the Santa Rosa powerhouse.

[g] The number of towers per mile were determine by GIS analysis for each alignment.

4.6 SENSITIVITY TO TRANSMISSION LINE FACILITY COST OF THE LEAPS PROJECT AND OTHER FACTORS

Although we do no have a clear assessment of the potential economic benefits from a 32-mile transmission line that would also potentially serve as an intertie, we concur that such a project would provide benefits to regional utilities and the co-applicants would likely be reimbursed for such benefits and services including elements such as increased reliability, and improved load flows. Studies conducted under the STEP concluded that an intertie, such as the TE/VS Interconnect Project, may lack the economic benefits to fully justify the costs. However these studies did not include significant strategic benefits such as improved reliability, better load diversity, improved fuel diversity, access to lower cost power resources, more firm power, better opportunity for power exchanges, and improved sharing of reserves. When these items are factored in by the co-applicants, perhaps the economics of the transmission line would improve to either a break-even or positive benefit.

If we assume the co-applicants were able to cover the facility costs associated with the transmission lines by contracts with regional utilities, we estimate that the economics of the pumped

storage project would improve by 43.5 dollars per MWh for the staff alternative as shown in table 54. Besides including benefits for the proposed intertie, the co-applicants may take into account escalating gas prices over time, other ancillary benefits not considered by staff and improved knowledge developed from detailed site investigations to improve the economic outlook for the LEAPS Project.

Table 54. Summary of annual net benefits for the no-action alternative, co-applicants' proposal, and staff alternative for the LEAPS Project excluding transmission line construction costs. (Source: Staff)

	No Action	**Co-applicants' Proposal**	**Staff Alternative**
Dependable capacity (MW)	500	500	500
Generation (MWh)	1,580,000	1,580,000	1,560,000
Annual power value ($2005)	130,832,200	142,823,100	142,823,100
Dollars/MWh	83.87	91.55	91.55
Annual cost ($2005)[a]	152,370,800	212,268,100	219,163,500
Dollars/MWh	97.67	136.07	140.49
Annual net benefit ($2005)	–21,538,600	–69,445,000	–76,340,400
Dollars/MWh	–13.81	–44.52	–48.94
Decrease from table 51		–30.71	–35.13

[a] The annual costs have been reduced by the co-applicants' estimated transmission lines costs and contingency, additional staff contingency, and other major construction items such as additional access roads, buried lines or helicopter aided construction. Certain environmental measures associated with erosion control, easements and terrestrial lands mitigation, etc. are not included in this cost reduction.

In a filing of June 12, 2006, Nevada Hydro comments that besides having energy benefits similar to what staff estimates, the proposed LEAPS project would have ancillary service benefits that it estimates at about $9 million annually, based on the project's potential ability to integrate wind generation in the system.

We agree that operational flexibility of pumped storage projects give them an advantage of other types of generators to compete in the ancillary services market. This flexibility includes the ability for pumped storage projects to start up quickly, rapidly increase load, switch from pumping to generating, and shape the project's output to meet load requirements. Our problem in assigning specific value to the LEAPS project in these various ancillary markets is that the project can not perform these various functions at the same time—if the project is using its reservoir storage to integrate wind generation into the system, it cannot at the same time use its storage to maximize the capacity it supplies. So, absent a executed power purchase contract that details the proposed project operation, we've used an approach that assumes the storage from the project can be used weekly to displace gas-fired generation.

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Section 5
Staff's Conclusions
Pages 5-1 through 5-42
FEIS

5.0 STAFF CONCLUSIONS[78]

When the Commission considers license proposals, besides looking at power and other developmental purposes—irrigation, flood control, water supply—it must also give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. So far in this final EIS, we have described both the environmental effects and our estimated cost of building the proposed project and the staff alternative. Based on this analysis, we select the staff alternative as our preferred alternative. In this section, we examine the environmental effects and project costs of the alternatives and explain how we decided on the environmental measures we include in our preferred alternative.

During scoping and in comments on the draft EIS, many people commented about the potential effects of the co-applicants' proposed Morrell Canyon upper reservoir on Lion Spring, oak woodlands, and the use of existing trails and about the potential effects of the proposed transmission alignment on fire suppression activities, the use of existing hang gliding launch and landing sites, and adjacent residential communities. The staff alternative includes an alternative facility location for the upper reservoir as well as a revised transmission alignment developed by the USFS and Commission staff.

These alternative facility locations address many of the key issues raised during scoping and in comments on the draft EIS. Though the staff alternative transmission alignment may affect nearby residential communities to a greater extent than the proposed project, we prefer the revised staff alignment because the transmission alignment avoids as many private in-holdings within the Cleveland National Forest as possible while continuing to avoid the San Mateo Wilderness Area and to minimize encroachment on lands designated as back-country non-motorized and back-country motorized-use restricted in the Land Management Plan. For these reasons, we prefer the staff alternative to the co-applicant's proposed project.

Comparing the staff alternative to no-action, we find that we also prefer the staff alternative. The staff alternative would allow the co-applicants to construct and operate the project as a peak energy resource and as part of a long-term solution to southern California's transmission congestion bottlenecks. The Talega-Escondido/Valley-Serrano transmission line could provide up to 1,000 MW of import capability into the San Diego area with up to 500 MW of this imported power being supplied by the LEAPS Project during high-demand periods.

Although neither of the co-applicants currently has contracts with end use customers, licensing the LEAPS Project would allow the co-applicants the opportunity to compete in the power market for sale of the project's power and other ancillary benefits. Pumped storage projects store power during off-peak periods that can be provided rapidly during on-peak periods and may provide a valuable addition to the regional system. Besides the potential power and transmission benefits, the LEAPS Project, through the proposed lake management fee, would provide reliable funding for water to maintain the lake level targets specified in the Lake Elsinore Stabilization and Enhancement Project, which is necessary both to improve water quality in Lake Elsinore and to allow the pumped storage project to operate. The LEAPS Project also would fund annual stocking of sport fish in Lake Elsinore. The project-funded park facilities would also enhance recreational opportunities in the area.

As we've said, the staff alternative that we describe in this final EIS greatly reduces the environmental effects of the project as originally proposed. The staff alternative would substantially reduce but not eliminate the loss of southern coast live oak as shown in table 55. The effects on hang gliding activities would be mostly eliminated through the underground placement of the transmission

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[78] In this section, "we" means the Commission staff.

lines in the vicinity of the USFS permitted launch sites and along the connection to the Santa Rosa powerhouse.

Construction and operation of the LEAPS Project as defined in the staff alternative would result in several unavoidable adverse impacts. Construction of the upper reservoir and powerhouse would cause the short-term disruption of traffic along Grand Avenue, Ortega Highway, and South Main Divide Road. Construction of the powerhouse would displace several residents and businesses located in buildings in close proximity to the construction site. The co-applicants propose to acquire these buildings and use them for construction offices. After construction, the co-applicants propose to return these buildings to the local building inventory. The construction of the transmission line would permanently displace a few residents whose property would need to be acquired for the right-of-way. Although the effects on aesthetics would be reduced by placing segments of the transmission line underground, construction of the transmission lines would introduce a permanent linear facility that would affect the aesthetics of the project area. The presence of the transmission line also could affect property values in the vicinity of the project facilities including about 450 parcels within 0.25 miles of the transmission alignment. The exact number of parcels requiring the acquisition of easements would depend upon the final placement of the line within the 500-foot-wide alignment considered in the EIS. The southern segment of the staff alternative transmission alignment is also within 3,000 feet of a private airstrip, which could render the airstrip unusable. Although the owner of the property would have to be compensated for loss of the property's use, people who currently use the strip for pleasure flying or commuting would lose that resource.

5.1 COMPARISON OF PROPOSED ACTION AND ALTERNATIVES

We summarize the key differences of the potential effects of the co-applicants' proposal and the staff alternative in table 55.

Table 55. Summary of key differences in the potential effects of the co-applicants' proposal and the staff alternative (Source: Staff)

	Upper Reservoir Comparison	
Resource/Issue	**Morrell Canyon (Co-applicants)**	**Decker Canyon (Staff)**
Area of effect	130-acre footprint; daily fluctuations of 40 feet and weekly fluctuations of 75 feet	120-acre footprint; daily and weekly fluctuations would be on the same order of magnitude as the upper reservoir at Morrell Canyon
	2.6 million cubic yards of fill needed for dam	3.0 million cubic yards of fill needed for dam
Fill materials		Less overburden at Decker Canyon would allow easier procurement of solid rock material for fill for dam and dike construction
Groundwater	Construction of tunnels for high pressure conduits could affect groundwater; design review of collection system for Lion Spring and effects on groundwater	Construction of tunnels for high pressure conduits could affect groundwater; no collection system would be required
Seismic hazards	Faults may control surface flows at the Morrell Canyon site	No faults have been identified at the Decker Canyon site and subsurface flow does not appear to be controlled by the presence of faults

	Upper Reservoir Comparison	
Resource/Issue	**Morrell Canyon (Co-applicants)**	**Decker Canyon (Staff)**
Surface water	Upper reservoir would interrupt stream flow	Same
Wetland and riparian habitat	Would affect 1.7 acres of waters of the U.S. and 4.8 acres of waters of the state, including Lion Spring; loss of these waters and associated riparian habitat would affect plant diversity and wildlife species; effects on downstream areas would be minimized by the water conveyance system under the reservoir	Would affect 0.3 acre of waters of the U.S. and 0.9 acres of waters of the state; no effects on springs or seeps; smaller effects on downstream areas because drainage area is smaller
Oak woodland communities	Would convert about 20 acres of southern coast live oak forest (500 to 600 individual trees over 8 dbh) to project use; would need to plant 20 acres to mitigate	Would convert about 5 acres of southern coast live oak forest to project use so effects would be similar to Morrell Canyon but on a smaller scale; would only need 5 acres to mitigate
Special status wildlife	Would convert 80 acres of chamise chaparral and 20 acres of southern coastal live oak to project facilities.	Would convert 95 acres of chamise chaparral and 5 acres of southern coastal live oak to project facilities.
Mountain lion	Would remove 100 acres of suitable mountain lion habitat from Core B; project operation and maintenance would not likely increase disturbance or risk of interaction over levels that currently result from traffic on South Main Divide Road and use of Morgan Trail	Would remove 100 acres of suitable mountain lion habitat from Core B; project operation and maintenance would represent a very small increase in disturbance, because no trails currently provide for recreation at Decker Canyon site
Munz's onion	No suitable habitat at reservoir site; however, South Main Divide Road in vicinity passes through a soil type that is known to support occurrences of this species	Same
Developed recreation facilities	Footprint would not include Morgan Trail trailhead with minimal effect on users of the trailhead during construction but trail would need to be re-routed either temporarily or permanently depending on final design	Morgan Trail would not have to be rerouted and because visitation is low, increased traffic on South Main Divide Road would have minimal effect on Morgan trailhead users
Dispersed recreation	Would affect hang gliders using the 2 most suitable of the 9 launch sites and waterside setting offered at Lion Spring	Would avoid effects on two most popular hang glider launch sites
	Would eliminate a natural looking canyon with oak woodland vegetation and replace it with a reservoir surrounded by a chain link fence; inconsistent with Retention VQO	The existing aesthetic resources within Decker Canyon are subordinate to Morrell Canyon and construction effects associated with building a reservoir in this location would be less than those at the Morrell site; development of the alternative site would not build over a mature oak-woodland riparian area (Lion Spring)
Traffic	Would achieve a balance of excavation to fill within the entire project site	Same

Resource/Issue	Upper Reservoir Comparison	
	Morrell Canyon (Co-applicants)	**Decker Canyon (Staff)**
Cultural resources	Would destroy or damage four prehistoric archaeological sites	No known sites at Decker Canyon location

Resource/Issue	Powerhouse Site Comparison		
	Santa Rosa (co-applicants and staff)	**Ortega Oaks**	**Evergreen**
Area of effect	30-acre site, 20-acre laydown, 340 depth of excavation	58 acres, inclusive of laydown; 320 depth of excavation; groundwater 30 to 70 feet	75 acres, 30-acre laydown, 290 depth of excavation
	327,500 cubic yards (includes 207,000 from the powerhouse cavern; 35,000 from the transformer gallery; 32,000 from the surge shaft; 500 from the vent shaft; and 53,000 from the powerhouse access shaft)	There will be similar values to Santa Rosa but about 33 percent more excavation for the tailrace tunnel, which would be about 86,450 cubic yards since the Santa Rosa tailrace tunnel is 65,000 cubic yards; also, the depth of excavation is slightly less than that of Santa Rosa	There will be similar values to Santa Rosa but about 10 percent less excavation for the tailrace tunnel, which would be about 58,500 cubic yards since the Santa Rosa tailrace tunnel is 65,000 cubic yards; also the depth of excavation is less than that of Santa Rosa
Special status plants	Construction of the powerhouse could affect Coulter's matilija poppy	Construction of tunnel between upper reservoir and powerhouse could affect Coulter's matilija poppy	No rare plants identified in vicinity of Evergreen powerhouse location
Wetland and riparian habitat	Would affect about 0.4 acre of waters of the U.S. and state	Same as Santa Rosa.	Would affect less than one-tenth of an acre of waters of the U.S. and state
Special status wildlife	Would affect 30 acres of coastal sage scrub and 20 acres of non-native grassland	Would affect 53 acres of non-native grassland and 5 acres of coastal sage scrub	Would affect 55 acres of non-native grasslands and 20 acres of coastal sage scrub
Future recreation use	Location of substation and above ground transmission lines from this location would affect hang gliding activities	Would affect use of hang gliding landing site during construction; would provide formal hang gliding landing site following construction	Would displace informal disperse recreational use at site

Resource/Issue	Powerhouse Site Comparison		
	Santa Rosa (co-applicants and staff)	**Ortega Oaks**	**Evergreen**
Land Use and Property values	Would permanently change use to utility and recreation use and preclude residential use specified in General Plan; would purchase, modify, and reuse adjacent private property (Santa Rosa Mountain Villa apartments) and buffer would reduce effect on property values	No effect on adjacent residential property values at Ortega Oaks	Either raze or use current Lakeland Childcare Center at the Lakeland Village Plaza for construction office resulting in displacement of child-related businesses and purchase/raze one single family home
Aesthetics	The powerhouse would be underground but the substation would be visible from surrounding residential and commercial properties	The powerhouse would be underground but the substation would be visible from the heavily used Ortega Highway	Same as Santa Rosa.
Aesthetics	All construction activities within this area would conflict with the Partial Retention VQO designated by the USFS; these effects would be short term and last for the duration of the construction	Construction activity at Ortega Oaks site would be visible from the Ortega Highway and a small portion of Grand Avenue in Lakeland Village; two prominent viewpoints to commuters in the area	Similar effects on the aesthetic resources as described above with respect to the proposed Santa Rosa site
Cultural Resources	Would affect two historic sites and one prehistoric archaeological site; could affect two historic buildings (vibration)	Would directly affect one prehistoric site	No known sites at Evergreen location

Resource/Issue	Transmission Alignment Comparison	
	Co-applicants' Proposed Alignment	**Staff Alternative Alignment**
Area of effect	34.1 miles in length with 10.8 miles of temporary access roads and 5.2 miles of permanent access road	33.7 miles in length with 9.3 miles of temporary access roads and 4.1 miles of permanent access road
Fire suppression activities	Could interfere with USFS fire suppression activities	Would avoid interference with USFS fire suppression activities

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Special status plants	Could affect Humboldt lily (Subarea 3); passes through potential habitat for Hammitt's clay-cress (Subarea 5). Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads and permanent maintenance roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Could affect Humboldt lily (Subarea 3); avoids potential habitat for Hammitt's clay-cress (Subarea 5). Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads and permanent maintenance roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled
Wetland and riparian habitat	Substation could affect about 1.1 acres of waters of the U.S. and state; effects from transmission towers would be minor as towers would be placed to avoid wetland and riparian habitat, but locations of access roads are unknown	Same
Special status wildlife	Substations would affect 35 acres and transmission line towers would affect 30 acres of potential habitat for special status species. About 10.3 miles of temporary access roads would affect an estimated 15.7 acres, plus indirect effects of construction (edge effects) and potential for disturbance (e.g., poaching, harassment) and habitat damage during operation, if public access is not controlled. Permanent maintenance road would affect 5.2 miles (9.5 acres)	Substations would affect 35 acres and transmission line towers would affect 30 acres of potential habitat for special status species. About 9.3 miles of temporary access roads would affect an estimated 13.5 acres, plus indirect effects of construction (edge effects) and potential for disturbance (e.g., poaching, harassment) and habitat damage during operation, if public access is not controlled. Permanent maintenance road would affect 4.1 miles (7.5 acres)
Mountain lion	Would remove about 21.25 acres of suitable mountain lion habitat from Core B for about 85 towers; although mountain lions may use roads for travel, construction of 5.2 miles of permanent and 10.8 miles of temporary access roads would substantially increase the risk of disturbance (e.g., poaching, harassment) and habitat damage during project operation, if public access is not controlled. Would cross proposed linkage 1 at Temescal Wash, but tower placement should not interrupt travel corridor	Same, except construction of 4 miles of permanent roads and 9.3 miles of temporary access roads would increase the risk of disturbance
Bird/T-lines	Northern portion (Temescal Wash/Lee Lake) of line presents a high risk to waterfowl; central portion siting either underground or behind ridgeline would minimize risk to raptors; southern portion poses moderate risk of collision where it would cross major drainages	Same

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Munz's onion	Would affect about 3.25 acres of potential habitat along the northern portion of the transmission line, about 23.2 acres at underground segment, and 35 acres at the northern substation. Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads and permanent maintenance roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Same, except would affect about 15.1 acres at underground segment
Slender-horned spine flower, San Diego ambrosia, California Orcutt grass, San Jacinto Valley crownscale	Occurrences at Temescal Wash at Indian Creek and Alberhill (Subarea 1); vernal pool habitat may exist along southern segment of alignment (Subarea 8). Tower construction could affect about 3.25 acres of potential habitat. Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Same
Thread-leaved brodiaea	Occurrences in the vicinity of Tenaja Creek (Subarea 7). Tower construction could affect about 0.25 acre of potential habitat. Pre-construction surveys could be conducted to prevent adverse effects during construction, but temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Same.
Quino checkerspot butterfly	Substation and tower construction would affect 36.75 acres within designated critical habitat and about 0.75 acre of potential habitat; temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Same

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Arroyo toad and California red-legged frog	Construction of towers at Temescal Wash (north) and Los Alamos Canyon and Tenaja Creek (south) could adversely affect about 1.25 acres of potential arroyo toad habitat; but could avoid California red-legged frog habitat through siting. No effects on critical habitat for either species, but temporary access roads would substantially increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Same
Southwestern willow flycatcher and least Bell's vireo	Occurrences at Temescal Wash and Tenaja Creek; construction of towers could affect about 1 acre of potential habitat. Access roads could also adversely affect habitat; temporary access roads would increase risk of disturbance and habitat damage during project operation, if public access is not controlled	Same
Coastal California gnatcatcher	Construction of northern substation and towers could affect 38.5 acres of habitat within proposed critical habitat; access roads could also adversely affect habitat; temporary access roads would increase risk of disturbance and habitat damage during project operation, if public access is not controlled.	Same
Stephens' kangaroo rat	Construction of northern substation and towers could affect over 38.5 acres of habitat within the Stephens' Kangaroo Rat Fee Assessment Area and Lake Mathews-Estelle Mountain Core Reserve; temporary access roads could also affect habitat and would increase the risk of disturbance and habitat damage during project operation, if public access is not controlled	Same except includes access roads with northern substation and towers
Developed recreation facilities	Would affect Wildomar OHV area and campground and these facilities would likely need to be closed during the first two years of construction (would be covered in the detailed site plan for construction)	Would avoid Wildomar OHV and campground locations; increased traffic due to construction would have minimal effects on users at these facilities
Dispersed recreation	Major effect on dispersed recreation would be in the vicinity of flight paths used by hang gliders; would present safety hazards; would result in considerable loss of hang gliding opportunities	Avoids some conflicts with hang gliding and FS land classifications where transmission line construction would be inconsistent with FS land management directives

	Transmission Alignment Comparison	
Resource/Issue	**Co-applicants' Proposed Alignment**	**Staff Alternative Alignment**
Aesthetics	Towers and corridors would be visible in the foreground, middleground and background; construction activities within the Cleveland National Forest would result in features which conflict with the Retention and Partial Retention VQO standards	Would introduce line, colors, and textures into the landscape that do not currently exist and this would not be consistent with Retention VQO and would be slightly more visible from key viewpoints than the co-applicants' proposed alignment
	The linear features of the lines would contrast with the mountain and within the Cleveland National Forest be in conflict with the VQOs; the towers, conductors and resulting footprint of the corridor would be visible from highly traveled roadways	Same. Also because the lines would be lower down on the mountain they would be closer to Lakeland Village and more visible from the community of Lake Elsinore
Future recreation use	Transmission alignment would affect use by hang gliders of both launch and landing areas but avoids residential areas	Would reduce conflicts with hang gliding uses
Roads	About 15.7 acres of temporary access roads could be revegetated; it is estimated that about 10.8 miles of road would be needed to service 32.1 miles of transmission line. About 5.2 miles (9.5 acres) would be needed for a permanent maintenance road along the underground segment	About 13.5 acres of roads could be revegetated; public use could adversely affect habitat along 9.3 miles of road. About 4.1 miles (7.5 acres) would be needed for a permanent maintenance road along the underground segment
Property values	Would adversely affect private property values up to 3 miles and 5 miles from where transmission alignment would cross or parallel private properties along northern portion and southern portion, respectively and would cross or be parallel within 0.25 mile about 8.6 miles of lands designated for residential development and may make these lands less desirable for development	Would adversely affect private property values up to 4 miles and 9 miles from where transmission alignment would cross or parallels private properties along northern portion and southern portion, respectively and would cross or be parallel within 0.25 acre of about 15.9 miles of land designated for residential development under the General Plan and may make these location less desirable for development
Land Use	Would be within 0.25 mile of 406 privately owned parcels and would cross or be adjacent to 6.1 miles of property zoned for residential use	Would be within 0.25 miles of 452 privately owned parcels and would cross or be adjacent to 13.4 miles of property zoned for residential use
Cultural resources	Northern segment could affect one prehistoric and two historic period archaeological sites; southern portion would not effect any known sites, but southern substation would affect one prehistoric site and sites in unsurveyed areas	Alignment has not been surveyed; could affect as yet unknown prehistoric sites

5.1.1 Co-applicants' Proposed Action

Project Facilities

- Construct an upper reservoir at Morrell Canyon based on the conceptual designs for alternate A.3.
- Construct a powerhouse at the Santa Rosa site based on the conceptual designs for the water conduit alternative H.3.
- Install a 500-kV line along the proposed transmission alignment.

Geology and Soils

- Retain a board of three or more qualified independent engineering consultants experienced in critical disciplines, such as geotechnical, mechanical, and civil engineering, to review the design specifications and construction of the project for safety and adequacy.
- Conduct additional geotechnical studies.
- Develop an erosion control plan prior to construction.
- Implement erosion control measures during construction.
- Develop and implement a plan for the design and construction of a system that would automatically detect conduit or penstock failure and, in the event of such a failure, immediately shut off flow in the conduit or penstock at the headworks.
- Develop and implement plans for clearing the upper reservoir area and re-vegetating disturbed areas with native plant species beneficial to wildlife prior to the start of any land-disturbing or land-clearing activities at the project.

Water Resources

- Develop and implement a upper reservoir and water conduit monitoring program to assess the effects of the upper reservoir liner and seepage collection systems, shafts, and tunnel on groundwater levels and water quality, including the installation of perimeter wells designed to establish groundwater levels and water quality prior to construction and to detect changes in groundwater levels and water quality after construction.
- Develop and implement a plan for installing drainage and flood control measures and any water detention structures to control storm run-off over the term of any license issued for the project.
- Pay an annual lake management fee to Elsinore Valley MWD to maintain Lake Elsinore at the minimum target elevation of 1,240 feet msl consistent with the goals of the Lake Elsinore Stabilization and Enhancement Project.[79]
- Develop and implement a dam safety monitoring program.[80]

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[79] The co-applicants estimate this fee at $1.8 million per year and indicate that it is subject to further negotiations with the Elsinore Valley MWD.

- Prepare a hazardous substances spill prevention and control plan.
- Develop and implement a plan to monitor DO and temperature downstream of the tailrace in Lake Elsinore and in Temescal Wash during construction and operation.

Aquatic Resources

- During construction drawdown, remove or reduce the existing fish population via netting or rotenone poisoning.
- Retain a qualified biologist or natural resource specialist to serve as an environmental construction monitor to ensure that incidental construction effects on biological resources are avoided or limited to the maximum feasible extent.
- Establish appropriate setbacks from streams, avoid sediment discharge, and implement BMPs identified by the USFS to avoid any effects on the existing steelhead recovery efforts in the San Mateo Watershed as part of the erosion control plan.
- Design and install physical barrier screens consistent with NMFS criteria in areas of underwater intakes to prevent impingement and entrainment.
- Establish limits of flow velocity rates of underwater intakes of less than 1.5 feet per second reduce impingement and entrainment of fish.
- Conduct monitoring for 1 year to determine the extent of fish entrainment and mortality at the Lake Elsinore intake/outlet structures, and implement and test behavioral avoidance devices if entrainment is significant.

Terrestrial Resources

- Employ a qualified biologist and/or natural resource specialist to monitor construction activities and help prevent adverse effects on sensitive species or habitats.
- Conduct wetlands delineations and prepare habitat mitigation and management plans in consultation with the Corps, CDFG, and the USFS.
- Develop and implement a plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas.
- Design and construct the transmission line to the standards outlined in 1996 by APLIC.
- Consult with the USFS and Interior to identify appropriate parcels for mitigation of habitat losses including 2:1 replacement ratio for about of 20 acres of oak woodlands and 1:1 replacement of 31 acres of coastal sage scrub.
- Provide compensation of $500 per acre for project effects within Stephens' Kangaroo Rat Fee Assessment Area.

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[80] This co-applicant-proposed measure is more of an administrative measure and would be coordinated with the Commission's Division of Dam Safety and Inspection and the California Department of Water Resources.

Recreational Resources

- Develop and implement a detailed site plan of construction sites and laydown areas relative to existing recreational facilities and specify contingencies for restricting public access to these areas and providing alternative facilities.
- Install fencing around the upper reservoir.
- Provide interpretive signage at the upper reservoir.
- Provide USFS with an ancillary structure that would complement the USFS firefighter's memorial along Ortega Highway.
- Grade, contour, and revegetate using native plants to return the site to pre-construction conditions or prepare the upper reservoir construction laydown area or another location for future development by the USFS or other entity as determined by the USFS.
- Relocate portions of the Morgan Trail (Forest Route 7-s-12) if the upper reservoir is located in Morrell Canyon.
- Develop and implement a recreation plan, including the construction of a botanical garden, and provision of powerhouse tours and other amenities at the Santa Rosa or Evergreen powerhouse location.
- Develop a hang glider landing site, provide for a community park, and public tours of the powerhouse if the powerhouse is located at the Ortega Oaks site and the proposed northern transmission alignment is used.
- Develop an annual fish stocking program for Lake Elsinore in consultation with FWS, CDFG, and the Joint Watershed Authority.

Land Use and Aesthetic Resources

- Acquire and modify the multi-family residences nearest the proposed powerhouse site (the Santa Rosa Villas in the case of the Santa Rosa powerhouse site and a single family home and Lakeland Village Plaza in the case of the optional Evergreen powerhouse site), provide relocation assistance, use properties for construction purposes or retain in vacant condition, and return to the regional housing inventory upon completion of construction to address potential adverse effects on residents during construction.
- Acquire fee simple or leasehold interests in lands needed for project purposes by voluntary sale or conveyance to the extent possible.
- Prepare a plan to avoid or minimize disturbances to the quality of the existing visual resource of the project area.
- Consult with the Riverside County Flood Control District and formulate and implement plans to avoid adversely affecting existing drainage facilities and to control any project-related drainage.
- Achieve a balance of excavation and fill materials at the project site by using excavated materials from the intake, powerhouse, penstock, tunnel, and upper reservoir excavations in the construction of upper reservoir dam and embankments.
- Participate in the installation of traffic signal at the Grand/Ortega intersection.

- If the Ortega Oaks power house location is selected, dedicate and improve any additional right-of-way along Ortega Highway that would be required to accommodate existing or anticipated future traffic volumes.
- Develop and implement traffic management and control plans to address construction traffic and access to and from active construction sites.
- Install temporary roads on National Forest System lands only with USFS approval and according to USFS policies and remove, recontour, and revegetate roads following construction, except where the USFS authorizes continued use of the roads for transmission line maintenance.
- Conduct all construction activities in accordance with the noise element of the County of Riverside Comprehensive General Plan, city of Elsinore construction noise standards and any applicable codes or standards.

Cultural Resources

- Consult with the SHPO or USFS at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project.[81]
- If previously unidentified archaeological or historic properties are discovered during the course of constructing or developing the project works or other facilities at the project, stop all land-clearing and land-disturbing activities in the vicinity of such properties and consult with the SHPO.[82]
- Implement measures proposed in the draft HPMP developed in consultation with the SHPO and USFS and filed with Commission, including provisions for the following: (1) completing pre-construction archaeological surveys in the APE; (2) determining the need for intensive surveys; (3) monitoring historic properties during construction; (4) appointing a tribal liaison; (5) studying the potential effects of ground acceleration on historic buildings; (6) developing a program to monitor archaeological sites for 5 years; and (7) developing a public interpretative program.
- Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources.
- Prepare any recovered fossil remains to the point of identification and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.

5.1.2 Staff Alternative (Preferred Alternative)

The staff alternative consists of an upper reservoir at the Decker Canyon site a powerhouse at the Santa Rosa site, and a transmission alignment. The staff alternative includes most of the co-applicants' environmental measures, except for their proposed recreational measures associated with the Morrell Canyon upper reservoir site, the measure to remove or reduce the existing fish population via netting or rotenone poisoning during construction, and the installation of fish screens. We have expanded the scope,

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[81] If activity is on USFS lands, also consult with the USFS at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project.

[82] Also consult with the USFS, if archaeological site or historic property is identified on USFS lands.

added consultation requirements or otherwise modified the co-applicants proposed measures for erosion control, water quality monitoring for the conveyance system, entrainment monitoring, habitat mitigation ratios, noxious weed control, avian protection guidelines, and construction monitoring in aquatic and terrestrial environments. The staff alternative would include the following modified and additional environmental measures.

Project Facilities

- Construct an upper reservoir at Decker Canyon based on the conceptual designs for alternative B.2.
- Install a 500-kV transmission line along the staff alternative transmission alignment.

Geology and Soils

- Include specific provisions in the proposed erosion control plan that apply erosion control measures and BMPs to all construction locations including the upper reservoir, drainage and flood control locations, penstock tunnels, powerhouse, tailrace, inlet/outlet structure, transmission lines, and all associated construction laydown areas and temporary on-site borrow areas and for all subsequent ground disturbing activities over the term of the license.

Water Resources

- Develop and implement a revised lake operating plan for Lake Elsinore, addressing increased minimum lake levels, flood control implications, and water supply issues.
- Develop and implement a surface water resources management plan to control and monitor project-related effects on water resources that support riparian vegetation on National Forest System lands.
- Include specific remediation measures in the proposed upper reservoir and water conduit monitoring program to allow immediate action to be taken should water and non-native aquatic species be released from the upper reservoir into the San Juan Creek drainage.
- Include specific provisions in the proposed upper reservoir and water conduit monitoring program to explore the groundwater and characterize the aquifer, to consult on groundwater inflow criteria, and to monitor groundwater levels during construction and operation of the water conduits including the tunnels and penstocks that convey water between the upper reservoir and the powerhouse for 10 years or longer if necessary, specifying remedial actions if monitoring reveals changes in groundwater levels or seepage into the tunnels.

Aquatic Resources

- Develop and implement a detailed plan specifying the activities, locations, methods, and schedules that the qualified environmental construction monitor would use to monitor construction activities in aquatic environments.
- Conduct entrainment monitoring for 1 year and once every 5 years over the term of any license issued to the project to determine the extent of fish entrainment and mortality at the Lake Elsinore intake/outlet structures and provide the monitoring results to CDFG, FWS, the State Water Board and the Joint Watershed Authority, and, based on the results of entrainment monitoring, develop and implement a plan to mitigate for entrainment losses through measures, such as enhancing nearshore fish habitat or stocking fish, that would aid in establishment of naturally sustaining population of desirable sport fish.

Terrestrial Resources

- Develop and implement a detailed plan specifying activities, locations, methods and schedules the qualified environmental construction monitor would use to monitor construction in terrestrial environments.
- Develop and implement a vegetation and invasive weed management plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas during construction and over the term of any license issued for the project.
- Develop and implement a Lake Elsinore monitoring and remediation plan to eliminate or reduce project-related effects, if any are identified, on nesting shorebirds, waterfowl, and other birds.
- Implement the proposed avian protection plan consistent with April 2005 avian protection plan guidelines and over the term of any license issued for the project.
- Conduct additional pre-construction special status plant surveys at transmission line tower sites and along transmission alignment access roads, consistent with the Multi-Species HCP.
- Prepare a habitat mitigation plan in consultation with the USFS, Interior, CDFG, and Riverside County to identify appropriate mitigation of habitat losses including a 1:1 replacement ratio for about 5 acres of oak woodlands, about 32 acres of coastal sage scrub, and about 216 acres of chaparral and grasslands.
- Consult with the USFS annually to review the list of special status species and survey new areas as needed.
- Develop and implement an annual employee awareness training program regarding special status plants and animals.
- Consult with the FWS during the process of developing final design drawings on measures to protect fish and wildlife resources.

Recreational Resources

- Develop and implement a safety during construction plan identifying potential hazard areas near public roads, trails, and recreation areas and facilities, and measures necessary to protect public safety and conduct daily inspections on National Forest System lands for fire plan compliance, public safety, and environmental protection.
- In consultation with the USFS, develop and implement a plan for a recreational facility at the construction laydown area used during construction of the upper reservoir on National Forest System lands or for an alternative use and/or location.
- Develop and implement a recreation plan that provides for transfer of cleared land to a local entity and development of recreation facilities at the powerhouse location and O&M funding sufficient to operate the facility.

Land Use and Aesthetics

- Develop and implement a plan to determine the toxicity of sediments in Lake Elsinore lakebed that would be disturbed by construction of the intake/outlet structure and to provide for appropriate handling and disposal if toxins are identified in the lakebed sediment prior to the commencement of the construction of the intake/outlet structure in Lake Elsinore.

- Achieve a balance of excavation and fill materials at the Decker Canyon reservoir site through additional excavation and dispose of all excavated materials from all other project facilities off site.
- Include in the proposed road and traffic management plan applicable on National Forest System lands, provisions addressing road construction, realignment, maintenance, use, and closure and identifying the co-applicants' responsibility for road maintenance and repair costs.
- Include in the proposed road and traffic management plan applicable on non-National Forest System lands, provisions addressing road construction, realignment, maintenance, use, and closure, as well as land management policies and practices associated with project-related roads during both construction and operations.
- Prepare and implement a scenery conservation plan to achieve the greatest consistency possible with the High Scenic Integrity Objectives of the Cleveland National Forest Land Management Plan.
- Develop and implement a transmission tower placement plan.

Cultural Resources

- Revise the draft HPMP in consultation with the SHPO, Tribes, BIA, the Lake Elsinore Historical Society, and the USFS and file a final HPMP for Commission approval within 1 year of license issuance.

Finally, Commission staff notes that the staff alternative includes all of the revised preliminary 4(e) conditions specified by the USFS and described in section 2.6.2, *USFS Section 4(e) Conditions*. Commission staff would supplement the following measure:

- Ensure all transmission facilities conform to APLIC et al. (1996) guidelines, including power lines to reduce risks of bird strikes. The co-applicants should conform to the April 2005 avian protection plan guidelines.

5.2 DISCUSSION OF KEY ISSUES

5.2.1 Project Facilities

Upper Reservoir

The co-applicants propose to locate the upper reservoir in Morrell Canyon. Our analysis shows that construction of an upper reservoir at the Morrell Canyon site would disrupt flows in the San Juan Creek drainage, displace Lion Spring, and remove more than 20 acres of southern coast live oak riparian forest. Oak woodlands are considered to support higher levels of biodiversity than any other terrestrial ecosystem in California and would be difficult to replace at the project site. Construction at this location would also remove 80 acres of chamise chaparral. Although abundant in the vicinity, conversion of chaparral to project use would reduce habitat available for the Santa Ana mountain lion population, which is at risk of extirpation because of rapid urban development. Recreational use at this location would be adversely affected because Morgan Trail, which accesses the San Mateo Wilderness Area, would need to be relocated either temporarily or permanently depending on the final design of this facility and because two of the most-used hang gliding launch sites (E and Edwards) would be closed or subjected to use restrictions during construction.

To avoid these potential adverse effects, the staff alternative would locate the upper reservoir in Decker Canyon. There would be no need to install a stream bypass conveyance system at this location

because the footprint of the reservoir is situated at the very top of the watershed, with no established stream network entering the site. Only 5 acres of southern coastal live oak would be affected and less off-site mitigation for habitat loss would be required, and no rare plant species would be affected. Locating the upper reservoir at the Decker Canyon location would avoid construction effects on the use of the E and Edwards hang gliding launch sites.

Table 55 compares the potential effects at the proposed Morrell Canyon and Decker Canyon locations. We estimate that the overall energy facility and transmission line, including an upper reservoir at Decker Canyon, would have a cost of construction (which includes development costs but excludes the license and environmental measures) of about $1,326,722,000, about $43,550,700 more than our estimate for the cost associated with such a facility at the proposed Morrell Canyon location. Additionally, we estimate that significant water control costs at Morrell Canyon given its upstream drainage, upstream and groundwater collection systems, and potentially higher liner costs could add more than $18,000,000 to the cost, decreasing the cost advantage of the co-applicants' proposed alternative to about $20,500,000. Because these estimates are based on preliminary designs and cost estimates and additional geotechnical investigations may identify other issues, we consider the cost of construction at either site to be within a comparable range.

Powerhouse

In the draft EIS, we included an underground powerhouse at the Ortega Oaks site and a mid-slope transmission alignment in a staff alternative to the co-applicants' proposal. The Ortega Oaks site combined with routing the transmission lines along a mid-slope alignment and west of the USFS-permitted launching sites lessened the potential effects on hang gliding opportunities and provided an opportunity to provide a formal landing area. In comments on the draft EIS, the co-applicants and others point out that Riverside County approved a subdivision of 100-single family residential lots at Ortega Oaks in April 2004, including the 58-acre site proposed by the co-applicants for the powerhouse and substation. The co-applicants also filed a report on the comparative geological and geotechnical conditions at the three powerhouse sites (Genterra, 2006). This report concludes that the Ortega Oaks site offers the least desirable subsurface conditions of the three sites. Hang gliding advocates commented that the proposed 5-acre formal landing area at Ortega Oaks would be inadequate and would still present hazards associated with an aboveground substation and the above ground distribution lines.

Our intent on including the Ortega Oaks powerhouse site in the draft EIS staff alternative was to avoid displacing residents and disrupting or eliminating hang gliding opportunities. We concluded that the geological and geotechnical challenges at any of three sites could be addressed in the final designs. However, given the proximity to the existing residential community adjacent to the site, the approved subdivision of lands that comprise the site, and the fact it would not eliminate hazards to hang gliders, we have revised the staff alternative to include a powerhouse at the Santa Rosa location. Locating the powerhouse at the Santa Rosa site combined with burying the transmission line connection to the powerhouse (see discussion under Transmission Alignment) would avoid conflicts with existing and planned high-density residential communities. This alternative also would provide a clear path for hang gliding from the USFS-permitted launch sites along South Main Divide Road and the existing informal landing site at Ortega Oaks and would place the above ground substation away from the existing landing site.

Construction activity at the Santa Rosa powerhouse site would affect the adjacent Butterfield school population, increase traffic on Grand Avenue, and disturb two historic archaeological sites and one prehistoric archaeological site. Vibrations could affect two historic buildings. Implementation of the co-applicants' proposed erosion control plan with our recommended measures and adherence to local noise and air quality ordinances would keep the effects of construction activity within acceptable limits for noise and dust. Implementation of the programmatic agreement and associated HPMP for cultural resources would avoid, reduce, or mitigate adverse effects to the three archaeological sites and two

historic buildings. It is important to note that National Register eligibility needs to be determined for the three affected archaeological sites. The construction activity would be short term. Operation of the project with an underground powerhouse at the Santa Rosa powerhouse site would introduce a new visual element (the substation) into a predominately low-density residential area instead of adjacent to a high-density residential development at the Ortega Oaks site.

Transmission Line

In response to comments on the draft EIS, the co-applicants revised their proposed transmission alignment. In response to comments, we revised the staff alternative transmission alignment as well. Table 55 compares the effects of the co-applicants' proposed transmission alignment and the staff alternative transmission alignment

Both the proposed and staff alternative alignments now avoid conflicts with commercial enterprises along the northern segment and include underground segments to reduce potential effects on hang gliding activities at the USFS permitted hang gliding launch sites and egress from the Rancho Capistrano community. The staff alternative transmission alignment also reduces conflicts with the Cleveland National Forest Land Management Plan and USFS fire suppression activities. The co-applicants' proposed alignment reduces conflicts with residential subdivisions along the southern segment and would generally be less visible to area residents. From the connection with the SCE line for about 4 miles to the northern border of the Cleveland National Forest, the co-applicants' proposed transmission alignment and the staff alternative transmission alignment follow the same route (see figures F-1 through F-4 in appendix F). About 2 miles of this segment of the alignment would run north/south on or adjacent to the existing Glen Eden Sun Club and the third phase of the planned Sycamore Creek community. Here, the overhead transmission lines would introduce a new unattractive visual element to subdivisions where utility lines are buried. As discussed in section 3.3.7.2 use of tree-type poles and non-reflective coatings could lessen the affects of above ground lines on adjacent residential areas, especially where the line runs adjacent to the Sycamore Creek and Glen Eden Sun Club communities. The transmission alignment under consideration in this EIS is a 500-foot-wide corridor within which the line and towers can be placed to minimize the potential effects on the aesthetics of adjacent communities within the requirement of the National Electric Safety Code. We considered whether to bury the entire 32-mile-long line and the 2-mile connection to the powerhouse. Burying the entire line would eliminate most of the visual effects (there would still be above ground substation connections) but would be cost prohibitive at an incremental cost in excess of $350 million. However, we recognize that there may be locations in close proximity to the alignment (such as Sycamore Creek or Glen Eden Sun Club) where the acquisition of easements may displace residents and where additional underground segments may be a feasible solution.

Within the Cleveland National Forest, the co-applicants' proposed transmission alignment would cross mostly National Forest System lands on relatively inaccessible, rugged, and steep terrain of the Elsinore Mountains and surrounding foothills for about 28 miles and would include an underground segment (about 3 miles) in the vicinity of the hang gliding launch sites and Rancho Capistrano and connecting to the powerhouse. The staff alternative transmission alignment generally follows a similar north/south through the Cleveland National Forest but runs up to a mile more easterly to avoid interference with firefighting activities, back country non-motorized areas, and wilderness areas. The staff alternative transmission alignment would include an underground segment of about 2.1 miles in the vicinity of the hang gliding launch sites. The two routes are the same along about 4 miles of the southern end of the alignment to the connection with the SDG&E line.

Hang gliding advocates raised concerns about the potential effects the proposed transmission line as discussed in the draft EIS would have on the current hang gliding opportunities in the city of Lake Elsinore and Riverside County. We concluded in section 3.3.8 of the draft EIS that the hang gliding industry may contribute about $1 million per year to the local economy. The underground segments of

both the co-applicants and staff alternative transmission alignments in the vicinity of the USFS-permitted launch sites and to the Santa Rosa powerhouse site address these concerns and greatly reduce effects on hang gliding activities.

The southern segment of the staff alternative transmission alignment avoids the San Mateo Wilderness area but runs in proximity to private residential properties, including the La Cresta community. As with the northern portion of the line, the final line and tower placement would be determined by the National Electric Safety Code and could include tree-type towers and non-reflective coatings to lessen the effects on adjacent communities. Again we considered whether to bury the line along this southern segment and concluded that the reduced effects on the visual resources (see figure D-7) did not justify the incremental cost of about $170 million.

As discussed in section 3.3.7, *Land Use and Aesthetic Resources,* the USFS has recently gone through an extensive public planning process to identify and develop policy for the forest. The Cleveland National Forest Land Use Plan is the framework designed to provide for management of USFS resources and values. The plan recognizes the potential for future development within the forest, and has designated certain lands as acceptable for various land uses, and sets guidelines for allowable alterations to the landscape. The plan provides for the preservation of certain unspoiled vistas and lands. This EIS discloses the effects of the proposed project on the USFS lands and indicates where it is incompatible with the approved plan. The Cleveland National Forest Land Management Plan may need to be amended to accept the project's inconsistencies while retaining the current plan's desired conditions and outcomes.

Overall, the staff alternative transmission alignment would reduce conflicts with USFS plan and fire suppression activities, hang gliding activities, and commercial enterprises. We recognize that, the co-applicants' proposed alignment is the less visible from key viewpoints in the wilderness area, along Ortega Highway, and from Lake Elsinore, but would still interfere with USFS fire suppression activities in several areas and would cross back-country non-motorized areas of the Cleveland National Forest. The staff alternative transmission alignment that would run parallel but east of the co-applicants' proposed alignment would avoid potential conflicts with fire suppression activities, although it would be more visible than the co-applicants' proposed alignment and would cross more private properties, many of which are in-holdings within the boundaries of the Cleveland National Forest. The proposed and staff alternative transmission line alignments are about the same length (about 32 miles with a 2 mile connection to the Santa Rosa powerhouse) and would involve comparable costs with the co-applicants alignment costing slightly more due to its longer overall length (34.1 miles versus 33.7 miles) and longer buried segment (5.2 miles versus 4.1 miles).

Both the co-applicants' proposed and staff alternative transmission alignments are considered as 500-foot-wide corridors within which the placement of transmission towers can be adjusted to avoid effects on buildings, sensitive habitats, riparian areas, viewsheds, and other environmental resources. The co-applicants propose to minimize the effects of the transmission line on environmental resources by placing towers outside of sensitive areas and riparian areas. The co-applicants also indicate that they would consider the use of tree-type towers in areas that cross or are adjacent to residential areas to reduce the visual impact of the transmission lines. Given these various considerations in the placing of towers, we recommend that the co-applicants prepare a transmission tower placement plan in consultation with the city of Lake Elsinore, Riverside County, the USFS, FWS, and CDFG. We estimate that this plan would entail a one time capital cost about $100,000 or $14,100 annualized and would be warranted as a means to ensure full consideration of the concerns of property owners, fish and wildlife resource agencies, and local governmental agencies about minimizing the effects of tower placements.

5.2.2 Construction Oversight

The co-applicants would be required to submit plans and specifications and a supporting design report prior to construction. The plans and specifications would describe how the project will be

constructed and the supporting design report would ensure the proposed project structures are designed in accordance with the Commission's Engineering Guidelines and sound engineering practice. All project construction would be overseen by quality control personnel, independent of the contractor, as well as engineers from the Commission's Division of Dam Safety and Inspections – San Francisco Regional Office.

The co-applicants' proposal to retain a board of three qualified independent engineering consultants experienced in critical hydropower construction disciplines would ensure that design specifications are appropriate to the site and that construction would proceed in a reasonable and safe manner under either alternative. This is particularly critical given the additional geotechnical studies proposed by the co-applicants and the need to develop final design drawings for the project features included in the staff alternative. We estimate that it would cost about $1,500,000 for the additional geotechnical and engineering design and review board services prior to and during construction of the project under either alternative, or $211,600 annually.

5.2.3 Geology and Soils

The potential for slope erosion and sediment transport into streams exists at the proposed project construction sites under both alternatives. The co-applicants' proposed erosion control plan would include measures and BMPs designed to avoid or minimize erosion at all construction locations during project construction. BMPs would include the co-applicants' proposal for appropriate setbacks from streams and avoidance of sediment discharges into streams to avoid effects on the existing steelhead recovery efforts in the San Mateo Watershed.

USFS revised preliminary 4(e) condition no. 15 specifies a plan that includes measures to control erosion, stream sedimentation, dust, and soil mass movement during construction and operation of the project. Development and implementation of an erosion control plan that applies erosion control measures and BMPs to all construction locations (including the upper reservoir, drainage and flood control locations, penstock tunnels, powerhouse, tailrace, inlet/outlet structure, transmission lines, and all associated construction laydown areas and temporary on-site borrow areas during project construction) would minimize the effects of erosion on water resources and other environmental resources in the project area.

A Quality Control and Inspection Program, including the co-applicants' proposed erosion and sediment control plan for construction activities, would be submitted prior to construction under the staff alternative. The staff alternative also would specify that the erosion control plan be implemented for any subsequent maintenance and ground-disturbing activities over the term of any license issued for the project.

The potential exists for high-pressure water conduits or penstock to fail. The co-applicants' proposed system to detect a water conduit or penstock failure and immediately shut off flow in the conduit or penstock at the headworks would limit the potential effects of erosion at and down slope of the failure point.

Removing vegetative cover during construction could result in the loss of native plants beneficial to wildlife and could result in surface erosion at the construction sites. To address this concern, the co-applicants propose two plans in conjunction with the erosion control plan. These plans address reservoir clearing and revegetation of disturbed soils. The reservoir clearing plan would identify the location and acres of lands to be cleared, describe the vegetation to be cleared, describe resource management goals related to fish and wildlife enhancement, and describe and map disposal methods and locations. The revegetation plan would address plant species and densities to be used, fertilization and irrigation requirements, an effectiveness monitoring program, provision for filing monitoring reports, and procedures to be followed if monitoring reveals that revegetation is not successful. These plans would be valuable in minimizing adverse effects on existing soil and botanical resources and helping to re-establish

appropriate plant communities. These plans would be consistent with USFS revised preliminary 4(e) condition no. 15, as described in section 3.3.1.2.

In section 3.3.4.2, we conclude that adding success criteria for replanting would improve the potential for restoring vegetation to its existing condition. Therefore, under the staff alternative the plan would specify that the co-applicants add a specific measure to the revegetation plan to identify criteria for success (e.g., percent coverage of desired species at specified time intervals) to provide the basis for determining which vegetation parameters to monitor as revegetation proceeds.

Under the staff alternative, the co-applicants would add a specific measure to the clearing plan to address stockpiling as clearing takes place and replacing topsoil after construction is completed. This step would provide additional support for re-establishment of native plant communities in native soils.

We estimate that the cost of developing the co-applicants' proposed erosion control plan would be about $32,500 annually and the cost to implement the proposed erosion control measures and BMPs during the construction of the project would be about $301,700 annually. The staff alternative would be $308,600 annually, or $6,900 more than the co-applicants' proposal. We estimate that the additional cost to implement the plan during the term of any license issued would be $9,900. We estimate that the cost of developing and maintaining the co-applicants' proposed conduit shut-down system would be $12,800 annually; the cost of their vegetative clearing plan would be $4,900 annually; and the cost of the revegetation plan would be $4,200.

5.2.4 Water Resources

Revised Lake Operating Plan

The co-applicants would pay an annual fee to the Elsinore Valley MWD to provide make-up water necessary to maintain lake elevations at 1,240 feet msl or above and would typically operate the project between lake elevations 1,240 and 1,247 feet msl under both alternatives.

The staff-recommended revised lake operating plan for Lake Elsinore would ensure that the measures related to make-up water, flood control, and project operations, in combination, would not produce unexpected consequences. Under the staff alternative the plan would, at a minimum, specify the amount and timing of minimum inflow for the make-up water and the point of discharge. In section 3.3.2.2, we conclude that the added volume of water from pumped storage operations (5,500 acre-feet) during flood seasons could raise the lake elevation several feet beyond the 1,249-foot msl elevation. Higher elevations could increase shoreline flooding and exacerbate the magnitude of spills into Temescal Wash and the Back Basin.

The co-applicants indicate that the annual lake management fee would be $1.872 million subject to further negotiation. We estimate that the cost of developing and implementing a revised lake operating plan over the term of any license issued would be $28,200 annually and would be necessary to address the effects of project operations of lake management. Developing and implementing a drainage and flood control plan as proposed by the co-applicants' and recommended by Riverside County would cost on additional $14,100 annually. As we said in section 3.3.2.2, these measures would assure that the reservoir levels would be within the operating range of the proposed project.

Preventing Interbasin Water Transfers

The storage of low quality Lake Elsinore water in the upper reservoir within the San Juan Creek Watershed has the potential to negatively affect water quality in the San Juan Creek. The co-applicants would monitor water quality and liner performance as part of their proposed upper reservoir and water conduit monitoring program (see discussion under Groundwater Monitoring). The co-applicants' plan to monitor the effectiveness of the drainage system/reservoir liner for the protection of existing flow

conditions at the upper reservoir would provide for an early detection of leakage from the upper reservoir liner and drain system. This plan would meet most of the objectives of Interior's recommendation for monitoring and maintaining the upper reservoir to eliminate or reduce release of water and non-native aquatic species from the upper reservoir into the San Juan Creek drainage. However, the co-applicants' plan is silent with regard to steps to take if monitoring shows that the liner and drain are not effective. In section 3.3.2.2, we conclude that advanced planning for remedial steps would allow for a rapid response in the unlikely event of leakage. Under the staff alternative, at this plan also would include specific remediation measures that could be taken. Our estimate for the cost of this plan is provided at the end of the discussion on groundwater monitoring.

Groundwater Monitoring

The co-applicants identified groundwater monitoring as an important consideration in their technical reports and description of anticipated affects. They propose an upper reservoir and water conduit (tunnels, shafts, and penstocks) monitoring program that would assess the affects of project construction on ground water levels and water quality. The co-applicants' program calls for gathering information on groundwater levels and water quality prior to the start of construction, monitoring groundwater levels during project construction, and taking remedial steps to grout and seal any observed seeps during construction. Because the majority of the water conduits would be lined, we would not expect excessive seepage during project operation. However, seepage could occur. Under the staff alternative, the monitoring program would specify continued monitoring of ground water levels for at least 10 years following commencement of project operations and would specify what remedial steps would be taken should changes in groundwater levels be detected. Our alternative would also include the development of groundwater inflow criteria in consultation with the USFS as part of the characterization of the aquifer prior to construction of the project. We would consider this step to be consistent with the co-applicants' proposal to gather information about groundwater levels prior to the start of construction at the upper reservoir site.

Developing and implementing the co-applicants' groundwater monitoring program would have a capital cost of $500,000 that would be incurred during the construction period and during the first 2 years of project operation. This would result in an annual cost of $70,500. Including provisions in the groundwater monitoring program for groundwater exploration and aquifer characterizations, monitoring groundwater levels and water quality for at least 10 years after the start of operation, and specifying remedial actions as called for under the staff alternative would add an annual cost of $34,700. The additional cost would be justified to ensure that the reservoir and tunnel linings are effective in preventing seepage that could adversely affect groundwater levels and water quality in surface streams.

Surface Water Monitoring

Project construction could affect wetlands and riparian habitat. The USFS specifies in revised preliminary 4(e) condition no. 35 that the co-applicants develop and implement a water surface management plan to control and monitor project-related effects on water resources that support riparian vegetation on National Forest System lands. Following construction, interception of rainfall within the area occupied by the reservoir would reduce peak flows during extreme (i.e., 100-year) flood events by about 6 percent, as discussed in section 3.3.2.2. Effects would be greater just below the dam, and would diminish downstream. During most years, assuming that design features would not alter the natural hydrograph (i.e., flow volume and timing would be the same), and we do not anticipate any effects on downstream waters, streams, wetlands, or riparian habitat to result from project operation at the proposed Morrell Canyon site.

Implementation of USFS revised preliminary 4(e) condition no. 35 would provide baseline information about hydrology, water quality, riparian plant communities and wildlife in Decker Canyon or Morrell Canyon and would establish a mechanism for long-term monitoring to evaluate project effects on

these resources. The condition indicates that the co-applicants should conduct inventories at both reservoir sites, although we note that if the Commission issues a license for the project, only one upper reservoir would be constructed. Implementation of a surface water management plan would provide baseline information that could be used for long-term monitoring and management.

Development and implementation of a water surface management plan add about $58,200 annually to the cost of the project but would be warranted.

Water Quality Monitoring

Project operations could affect temperature, DO, and nutrient cycling occurring in Lake Elsinore under both alternatives. In section 3.3.2.2, we conclude that operating the project would slightly improve DO levels in Lake Elsinore as a result of the mixing of denser, cooler water from the upper reservoir with the warmer water in Lake Elsinore. The co-applicants propose to monitor DO and water temperature in the tailrace area and Temescal Wash during and after construction of the project. However, the actual effect of project operations may be difficult to separate from the improvements in DO from implementation of the aeration program under the Lake Elsinore Stabilization and Enhancement Project. We estimate that the annual cost of water quality monitoring would be $31,200.

Spill Prevention Plan

The potential for the release of fuels, oils, lubricants, and other hazardous substances exists at the sites of project features during construction and during operation of the project under both alternatives. The co-applicants' proposal to prepare a hazardous substances spill prevention and control plan would prevent and minimize any effects associated with the handling of hazardous substances during project construction and operation. We estimate the cost to develop and implement this plan would be $1,400.

5.2.5 Aquatic Resources

Environmental Construction Monitor

The potential for slope erosion, sediment transport into streams, and hazardous substance spills exists at all the proposed construction sites under both alternatives. To address these concerns, the co-applicants propose to develop and implement a detailed plan for monitoring construction activities in aquatic and terrestrial environments by a qualified environmental construction monitor. USFS revised preliminary 4(e) condition no. 32 specifies that this plan should specify the activities, locations, and frequency of the monitoring that would occur. We conclude in section 3.3.3.2 that more specifics are needed to ensure that all the activities, locations, and frequencies of inspections are commensurate with the potential effects of project construction. Under the staff alternative, the detailed plan would describe the specific monitoring activities, locations, and frequencies. We estimate that the co-applicants' annual costs for environmental monitoring during construction would be $18,300 for aquatic resources and $42,300 for terrestrial resources. We estimate that the annual cost for developing our more detailed plan would be about $20,000, or about $2,800 more than the co-applicants' proposal for construction monitoring. These cost estimates would be the same under either alternative.

Entrainment Prevention Measures

Operation of the project has the potential to entrain fish at the intake/outlet structure in Lake Elsinore. The co-applicants' propose a program to install screens in the areas of the intake structures, to monitor entrainment over a 1-year period, and to test and implement devices that would decrease entrainment if significant entrainment is documented, and reduce the potential project-related mortality of fish in Lake Elsinore. The co-applicants propose to adhere to the NMFS' design criteria for salmonids in designing and installing the intake fish screen. Lake Elsinore contains resident fish such as carp,

threadfin shad, bass and crappie, and the Joint Watershed Authority intends to stock largemouth bass, black crappie, Sacramento perch, and bluegill. Screen design criteria for these resident species have not been studied, however, assuming that NMFS approach velocity criteria of 0.8 feet per second were used (fish longer than 2.36 inches), the screens would need to be quite large in relation to the tailrace tunnels, and are likely not feasible for the Lake Elsinore Project. Without screens, the co-applicants state the approach velocity for the intakes will range from 1.5 to 1.8 cfs and entrainment would occur.

We estimate that the co-applicants' annual cost to design and install fish screens would be between $4 and $15 million for each tailrace tunnel, based on cost information provided by Washington DFW (2005). Assuming costs near the low end of the range and adding $10,000 per year for O&M results in an annual cost of $1,138,800. We estimate the cost of additional consultation with the agencies would add about $1,400 annually.

Besides screening, other measures to provide entrainment could be considered. However, the costs of implementation of other behavioral devices cannot be estimated at this time, as it is not known which species might need to be targeted, such devices are highly dependent upon site-specific characteristics, and are as yet highly experimental and costly.

As discussed in section 3.3.3, *Fisheries Resources*, without more information on the exact location, distance from shore, depth and orientation of the intake/outlet structure to the surface and shore we can only generalize the potential impacts to the Lake Elsinore fishery from entrainment. If the intake structure were to be placed on the shoreline where juvenile fish would encounter the intake while foraging or cruising, the likelihood for entrainment is higher than if the structure were placed farther away from shore where juvenile fish are less likely to be found. Also, we note that many of the sport fish in the lake will continue to originate from stocking efforts, and most will be large enough to avoid entrainment, so that project effects on adult stocks is likely to be small. In addition, unlike river systems, the intake/outlet structure area is small in relation to the overall size of the lake, and fish would need to actively swim into the area in order to be vulnerable to entrainment. Therefore the likelihood of significant impacts from entrainment is low.

The relatively high costs and technical challenges of installing intake screens and/or experimental behavioral devices, as well as the changing nature of the fish populations in the lake due to efforts by the Joint Watershed Authority, make it difficult to assess the impact of the pump storage project would have on Lake Elsinore fish populations over the life of the license. Measures described by the Fisheries Management Plan developed by the Joint Watershed Authority seek to change the existing population structure and fish populations in the lake over a 20-year planning horizon as a result of bio-manipulation techniques, stocking activities, and habitat enhancement measures. As a result of these non-project-related activities the species of fish present in the lake subject to entrainment over time would likely change. Therefore, in lieu of physical fish barriers or screens, the staff alternative includes provisions for monitoring the intakes for entrainment for a period of 1 year after the project is put into operation, and again once every 5 years as recommended by the State Water Board. Such monitoring would provide information on the level of project impacts from entrainment over time. We recommend the co-applicants provide the monitoring results to and consult with CDFG, FWS, the State Water Board, and the Joint Watershed Authority to assess and, based on monitoring results, develop measures to mitigate for project impacts to the existing fishery. A report describing the results of the entrainment study and recommended measures to mitigate for any project impacts on the fishery in Lake Elsinore should be submitted to the Commission for approval. Measures to be implemented could range from making improvements to nearshore habitat including the establishment of aquatic and emergent vegetation, placement of log cribs and/or brush structures, placing spawning gravels where appropriate and providing spawning benches for bass as described in the Joint Watershed Authority Fisheries Management Plan. Coordinating activities with the Joint Water Authority and CDFG would help to ensure that activities are consistent with local and regional efforts to improve the sport fishery in Lake Elsinore.

We estimate that monitoring sports fish for entrainment and mortality once every 5 years as recommended by staff would cost about $9,300. We estimate that the development and implementation of a plan to mitigate the effects of entrainment, including measures consistent with the Joint Watershed Authority Fisheries Management Plan, would be $33,800 annually.

5.2.6 Terrestrial Resources

Special Status Plants and Animals

The co-applicants propose to employ a construction monitor to assist in identifying measures to protect native plants and wildlife, starting with pre-design conferencing and continuing through completion of the project. Interior's recommendation 10(a)-1 would provide specifically for consultation with FWS during project design to identify measures that may be needed to protect fish and wildlife. Implementation of USFS revised preliminary 4(e) condition nos. 29 and 30 would continue these benefits to terrestrial resources through the term of the license by providing for annual employee awareness training, annual review of species' status, consultation with USFS on the need for new surveys, and implementation of protective measures, if needed.

The staff alternative includes pre-construction surveys for special status plants and animals in areas that have not been covered yet or that have not been thoroughly covered during previous surveys. These surveys should also cover Multi-Species HCP narrow endemics, riverine/riparian, and Criteria Area Study species, to allow Riverside County to evaluate project consistency with this plan. The measures identified above would provide adequate protection for special status plants and animals, including federally listed species, from project design through any new license period. These actions would be consistent with Interior's request for consultation with FWS in designing measures to protect fish and wildlife, with Interior's and Riverside County's recommendations for an analysis of consistency of the project with the Multi-Species HCP.

Interior recommends that the co-applicants immediately halt project construction or operation if situations arise where fish or wildlife are being harmed or endangered, but the recommendation does not define what would constitute such an emergency or specify methods for determining whether harm or endangerment are occurring. This concern would be appropriately addressed, under either alternative, in the construction monitoring plan described above.

We estimate that the annual cost of the staff alternative measures for monitoring special status plants and animals would be about $14,100 for pre-construction surveys; $6,200 for annual reviews of species status; and $11,400 annually for employee awareness training, or about $31,700 annually for all three measures.

Noxious Weeds and Exotic Plants

The co-applicants propose to design and implement an integrated pest management plan to prevent the introduction of weeds during construction and to control any populations of weeds that are identified near construction sites during project implementation. USFS revised preliminary 4(e) condition no. 33 is very similar, specifying that the co-applicants should consult with the USFS to develop and implement a plan to monitor and control noxious weeds and non-native invasive species, but the USFS specifies this plan should be continued through any license period. USFS also indicates that the vegetation and invasive weed management plan should be consistent with guidance provided in the Cleveland National Forest Land Management Plan, including consulting with USFS to design and conduct an invasive non-native plant and noxious weed risk assessment, using weed lists that are current at the time of survey (USFS, 2005b). Implementation of USFS revised preliminary 4(e) condition no. 29, which provides for annual employee awareness training, would apply to noxious weeds and invasive non-native plants, as well as to special status plants, as described above. Section 3.3.4.2, *Noxious Weeds and*

Exotic Plants, provides information about the minimum requirements of USFS revised preliminary 4(e) condition no. 29.

Although the co-applicants may not propose to construct any new project features during the license period, routine project maintenance could cause ground disturbance at project facilities, and project-related traffic would pose a risk of introducing and spreading weeds. Public use of any access roads would have an especially high potential for adverse effects because it would likely be difficult to control. Implementation of a noxious weed management plan throughout the term of any new license for both USFS and non-USFS lands within the project boundary would reduce these risks and help to protect native plant communities and wildlife habitat values. This approach would minimize planning costs and would provide coverage for weeds and invasive exotic plants throughout the project area, as a whole.

We estimate the annual cost of developing and implementing the co-applicants' noxious weed control plan would be $14,100. We estimate the additional annual cost of developing and implementing the plan under the staff alternative would be $22,800.

Habitat Mitigation

The co-applicants propose to provide mitigation for the loss of high-value habitats at a ratio of 2:1 for oak woodlands and 1:1 for coastal sage scrub. The co-applicants do not propose mitigation for habitats, such as chamise chaparral and non-native grassland, because they are abundant in the project area. The co-applicants propose to mitigate wetland and riparian habitat effects. They would conduct formal wetland delineations when the final location of each project feature has been determined, and then prepare a habitat mitigation management plan for approval by the Corps, CDFG, and the USFS. We estimate the annual cost for the co-applicants' plan would be $15,200.

Interior recommends that the co-applicants evaluate consistency of the project with the existing Multi-Species HCP and Stephens' Kangaroo Rat HCP, and with the North County Multi-Species HCP, which is under development. Interior recommends the co-applicants conduct an in-depth equivalency analysis to determine adequate mitigation ratios for effects that may occur within the Multi-Species HCP area. Interior indicates that in these areas the minimum ratio for mitigation would be 1:1. Riverside County also recommends an evaluation of consistency with the Multi-Species HCP.

The USFS revised preliminary condition no. 38 species a minimum mitigation ratio would be 1:1 for riparian oak woodland, coastal sage scrub, and habitats that are sensitive or support listed species, as well as the development of a habitat mitigation plan.

The staff alternative includes mitigation at a minimum ratio of 1:1 for oak woodlands and for coastal sage scrub and an equivalency analysis as specified by USFS and recommended by Interior. Although chamise chaparral and non-native grasslands vegetation cover types are currently abundant in the project area and in southern California, they provide habitat for native plants and wildlife, including many special status species. They are undergoing rapid development as a result of human population growth. We recommend replacing them at a 1:1 mitigation ratio, to reduce the project's contribution to cumulative habitat loss. The staff alternative's mitigation ratio would be consistent with Interior and USFS recommendations in terms of compensation ratios. Under the staff alternative the co-applicants would conduct formal wetland delineations when the location of each project feature has been determined. The co-applicants would also consult with the Corps regarding formal delineation of effects on Lake Elsinore. When the delineations are complete, the co-applicants would consult with the agencies to develop and implement a habitat mitigation and management plan. The habitat mitigation management plan would focus to the extent possible on replacing wetland acreage, functions, and values in-kind and on site. Where this is not possible, habitats associated with Lake Elsinore would provide a range of opportunities for wetland enhancement.

In developing cost estimates for habitat mitigation of project effects that occur on non-National Forest System lands under any alternative, we have assumed the co-applicants would acquire (in fee title or via conservation easements) private lands that are degraded or under threat of development, and transfer those lands into reserves that could be managed over the long-term by a non-governmental organization or public land trust. This approach would ensure the protection and management of large blocks of land and habitat linkages, would offer greater benefits to wildlife, and could be managed more economically than small, scattered parcels in individual ownership. The USFS revised preliminary 4(e) condition no. 38 specifies that mitigation should occur in the project area; otherwise, the highest priorities would be the Elsinore "Place," the Trabuco Ranger District, or the Cleveland National Forest. Thus, mitigation for project effects that occur on National Forest System lands may focus on private in-holdings.

We estimate that the capital cost of these measures at Decker Canyon for habitat mitigation under the staff alternative would total $3,212,500 with an annual cost of $322, 300 including $4,200 for O&M, as compared to the co-applicants' Morrell Canyon proposal with an estimated capital cost of $2,060,000 and annual cost of $204,100, resulting in an overall annual cost increase of $118,200.

Avian Protection Plan

The co-applicants propose to design the transmission line features to be consistent with guidelines developed by APLIC et al. (1996). USFS revised preliminary 4(e) condition no. 34 specifies this approach, also, and specifies marking the power lines if they are adjacent to Lake Elsinore or in a flyway where bird strikes may occur. In section 3.3.4.2, *Environmental Consequences* in *Terrestrial Resources*, we conclude that there is moderate risk of avian collision along several segments of both the co-applicants and staff alternative transmission alignments. The co-applicants should make use of Avian Power Line Interaction Committee's publications, including *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* and *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.* We note that APLIC and FWS (2005) recently completed new guidelines for the development of avian protection plans. These guidelines would assist the co-applicants with initial design and alignment of the transmission line and in design of a long-term plan for monitoring. A pre-construction evaluation of the transmission line design and alignment would be needed to identify high-risk crossings, where markers or bird diverters could be used to reduce the risk of bird collisions with the transmission line. A long-term plan for monitoring and managing risks, based on recent recommendations developed by APLIC and FWS (2005), could be used to track the effectiveness of measures that are implemented to protect birds. Results of monitoring could be used to identify problem spans or poles and allow for retrofitting where needed. The cost of the staff alternative measure to develop the avian protection plan would be $20,000, or $2,800 annually, the same cost as estimated by the co-applicants. The additional annual cost of implementing the plan over the term of the license under the staff alternative would be about $20,000.

Lake Elsinore Monitoring and Remediation Plan

The co-applicants do not propose any measures to address potential project-related effects to nesting shorebirds, waterfowl, or other birds at Lake Elsinore. Under the proposed operations, Lake Elsinore would fluctuate about 1 foot daily and about 1.7 feet weekly. Interior recommends that the co-applicants consult with FWS and CDFG to develop a plan to eliminate or reduce effects on nesting shorebirds that might be affected by water surface fluctuations. The plan would include monitoring to allow early detection of effects, immediate steps to remedy effects, timing and performance criteria, and annual reporting to FWS and CDFG. In section 3.3.4.2, *Environmental Consequences, Terrestrial Resources,* we conclude that habitat along the Lake Elsinore shoreline is generally not suitable for nesting waterfowl, although City of Lake Elsinore staff report that black-necked stilts, avocets, and killdeer (ground-nesters that use scrapes in bare soils or sparsely vegetated areas) do nest in undisturbed areas

around the lake. With implementation of the Lake Elsinore Stabilization and Enhancement Project, year-to-year water-level fluctuations would be reduced and Lake Elsinore would no longer dry up in drought years. Under these circumstances, additional riparian vegetation, such as cattails, tule, and willows may be able to establish along the shoreline. Improvements in riparian habitat could increase its suitability for nesting shorebirds, waterfowl, and other birds. For these reasons, the staff alternative would incorporate Interior's recommendation, and would further recommend that the co-applicants consult with the resource management agencies and other interested parties (FWS, CDFG, Riverside County, City of Lake Elsinore) to develop and implement the plan. We estimate that the initial capital cost to develop the staff alternative plan would be $20,000 and the cost of implementing the plan would be $20,000 annually, resulting in an overall annual cost of $22,800.

5.2.7 Threatened and Endangered Species

As discussed in section 3.3.5.2, *Threatened and Endangered Species*), several federally listed species may occur in the project area. MBA conducted focused surveys for listed plants and animals between 2001 and 2006, and found no occurrences[83]. However, MBA's surveys did not cover all areas that would be affected by project construction, primarily because transmission alignments have been modified since the surveys were conducted, and the locations of many project features (e.g., access roads, helicopter fly yards, overhead/underground transition stations, pulling and tensioning stations) have not yet been determined. Some areas were excluded from survey due to private ownership, difficult access, or impenetrable vegetation. Thus, we have no evidence to support a conclusion that the project would not adversely affect any listed species that may be present. As discussed in section 5.6.4 (Endangered Species Act), we therefore find that the project may adversely affect San Diego thornmint, San Diego button-celery, spreading navarretia, Nevin's barberry, Munz's onion, slender-horned spineflower, San Diego ambrosia, California Orcutt grass, thread-leaved brodiaea, San Jacinto Valley crownscale, Quino checkerspot butterfly, arroyo toad, southwestern willow flycatcher, least Bell's vireo, coastal California gnatcatcher, and Stephens' kangaroo rat. Construction of some project features would occur within designated critical habitat for Quino checkerspot butterfly, proposed critical habitat for coastal California gnatcatcher, and a Core Reserve for the Stephens' kangaroo rat. Construction would also affect suitable habitat for these species, outside designated areas.

Operation of the project may also adversely affect listed species. Although temporary access roads would be obliterated, it is difficult to prevent OHV use, once a road has been cleared. OHV use directly affects soils and vegetation, promotes the introduction and spread of noxious weeds and invasive non-native plants, increases the risk of wildfire, and causes noise disturbance. Helicopter access for regular maintenance of the transmission line would also cause noise disturbance, but effects would be short-term and local.

To mitigate for project effects on listed species, the co-applicants propose to pay the $500-per-acre fee required within the Stephens' Kangaroo Rat Fee Assessment Area. Interior 10(j)-3 recommends a minimum of 1:1 mitigation for any habitat impacts that occur inside the Core Reserve for this species. We estimate that construction would convert about 38.25 acres of Stephens' kangaroo rat habitat to project use. The staff alternative includes this acreage as part of the recommended habitat mitigation described above (section 5.2.6, *Habitat Mitigation*).

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[83] MBA did not conduct surveys for bald eagles, because they are rarely present in the project area. Rather than surveying for Stephens' kangaroo rat, the co-applicants elected to assume presence and provide mitigation. MBA observed Munz's onion "adjacent to the project right-of-way" at one location at the northern end of the transmission alignment. Although not observed during MBA's surveys, the Forest Service has records of coastal California gnatcatcher in the vicinity of the north end of the transmission alignment.

Interior's 10(a) recommendation no. 1 calls for the co-applicants to consult with FWS regarding protection, mitigation, and enhancement measures for fish and wildlife, as designs for the LEAPS Project are developed. Under the staff alternative, we recommend the co-applicants consult with FWS (and the USFS, on National Forest System lands) to design and conduct pre-construction surveys in areas that have not already been thoroughly covered; prepare detailed survey reports and maps for FWS (and the USFS) review and comment; and use this information to design and locate project features to avoid or minimize adverse effects on listed species and their habitat. We are recommending that if listed species are present, the co-applicants consult with the agencies to develop and implement a plan for annual consultation and implementation of protective measures (e.g., maintenance timing restrictions) to continue through any new license period. At a minimum, the plan should identify BMPs to be implemented during construction and operation, and provide mechanisms for monitoring, reporting, and adaptive management. We are also recommending the co-applicants develop road management and vegetation management plans, which should also be protective of listed species, if any are present.

We estimate the cost of the staff measure to consult with FWS would be $3,400 annually. We estimate the annual cost of the Stephens' kangaroo rat fee for the co-applicants' proposal (38.25 acres) would be $2,700

5.2.8 Recreational Resources

Hang Gliding

The co-applicants propose to place the transmission lines underground in the vicinity of the USFS permitted hang gliding launch areas. The staff alternative transmission alignment also would include an underground segment in this area. Lake Elsinore is a very popular location for hang gliding. The site possesses unique atmospheric conditions that create this opportunity and the site has become one of the best locations for this activity in the world. Both alignments would avoid placing transmission lines between the most popular launch sites and the informal landing site just west of the proposed Ortega Oaks powerhouse site and would allow for the continuation of world-class hang gliding and parasailing opportunities in the Lake Elsinore region.

We estimate that the additional cost associated with burying the transmission line underground for 4.1 miles in the vicinity of the USFS permitted hang gliding launch sites would be $48,999,800 or $6,913,800 annually.

Developed Recreational Facilities at the Upper Reservoir

It is not the intent of the co-applicants to provide new water-based recreational activities at the upper reservoir. The focus during construction would be to ensure the safe use of existing roads, trails, and nearby recreational areas during construction. Following construction, the co-applicants would install a fence around the perimeter of the upper reservoir to prevent public access. The co-applicants' would install an ancillary structure, at a USFS-site off Ortega Highway, provide interpretive signage, and provide a cleared parcel at the upper reservoir or at another site to the USFS for future recreational development. USFS revised preliminary 4(e) condition no. 27 specifies that the co-applicants develop and implement a recreational development facility plan for a day-use recreational facility at the construction laydown area used to construct the upper reservoir. The co-applicants filed an alternative 4(e) condition that would broaden the USFS revised preliminary 4(e) conditions no. 27 to allow the co-applicants to provide an another site near the upper reservoir.

We conclude in section 3.3.6.2 that developing a recreational facility on the site used for the construction laydown area or another site near the upper reservoir would accommodate visitors who are coming to the area, visiting the upper reservoir, or viewing Lake Elsinore. Providing a formal recreational area would reduce pollution by providing visitors with facilities for disposing of trash and

human waste, protecting vegetation and soil by controlling the locations where vehicles may travel and park, and reducing the potential for fires by providing cleared areas for parking. Because day-use facilities do not currently exist in this area, this facility, along with an ancillary structure such as a visitor center, and signage, would meet the needs of visitors who are coming to the upper reservoir area by providing a few basic conveniences while protecting natural resources from the effects of wide-spread dispersed recreational use.

Fencing the upper reservoir would result in an annual cost of $12,600. We estimate that the annual cost of the co-applicants' proposed ancillary structure (visitor center) and signage would be $7,000 and $1,200, respectively. We estimate the cost of developing and implementing the staff alternative plan for a recreational facility at the upper reservoir would have a capital cost of $144,200 and annual costs of $4,000, resulting in an overall annual cost of $20,100 beyond what the co-applicants propose.

Developed Recreational Facilities at the Powerhouse

The co-applicants propose to provide cleared lands and funding for the construction of recreational facilities at the powerhouse location. The co-applicants would consult with the USFS and local agencies to determine the type of community recreational facility to provide at the selected powerhouse. At the proposed Santa Rosa powerhouse site, the co-applicants would also provide a botanical garden and powerhouse tours to promote awareness of water conservation and use of drought-resistance plant species. In section 3.3.6.2, we conclude that the co-applicants' proposed measures would provide recreational opportunities that currently do not exist in these locations. Under both the co-applicants' proposal and the staff alternative, the existing informal hang gliding landing area at the Ortega Oaks location would remain available and any future development at that subject would be subject to local plans. Because the staff alternative would place the powerhouse at the Santa Rosa site (as opposed to the Ortega Oaks location) and would bury the transmission lines in the vicinity of the launching sites and the connection to the powerhouse, we do not include any provision for a formal hang gliding landing area our recommended recreation plan.

The co-applicants would not provide funding for the O&M of the facilities unless they remain in public ownership and are located on National Forest System lands. The co-applicants are willing to retain ownership and be responsible for O&M subject to a determination whether such ownership and operation would be authorized under the Elsinore Valley MWD's existing special district authority for developments not in public ownership and not located on National Forest System lands. We conclude in section 3.3.7.2 that relying on funding that may or not be available to local agencies would not provide certainty that the facilities would be properly maintained through the period of the license. The staff alternative includes a recreation plan for the facility development that includes financial commitments to provide for O&M funding in the event that intended sources of O&M funding are either insufficient or unavailable.

We estimate the cost of providing public tours at the powerhouse would be $18,700. We estimate that the capital cost of the co-applicants' proposed recreational facilities at the Santa Rosa powerhouse site would be $5,610,800 (including land acquisition costs) and the annual cost would be $678,500. We estimate that the additional cost of the staff alternative measure to provide O&M funds for this recreational facility would be about $125,400 annually.

Recreational Angling at Lake Elsinore

The Joint Water Authority's Program Environmental Impact Report includes a detailed Fish Management Plan with objectives to improve the sport fishery in Lake Elsinore. The co-applicants' proposal to provide funds in support of the annual fish stocking program recommended in the Joint Watershed Authority's Fish Management Plan would enhance recreational fisheries in Lake Elsinore. We conclude in section 3.3.3.2 that the stocking of predators to carp and threadfin shad, consistent with the

Fish Management Plan, would reduce populations of those species and allow more game fish to survive, enhancing recreational angling opportunities. We estimate the annual cost for the co-applicants' proposed stocking program would be $21,400.

5.2.9 Land Use and Aesthetics

Road and Traffic Management

The construction and operation of the proposed project facilities and about 32 miles of transmission lines across federal and private properties and access to project facilities would require the construction of an estimated 10.8 miles of temporary access roads and 1.0 mile of permanent access roads, the exact location of which are not identified at the current level of planning. We anticipate that about 9.3 miles of temporary roads to access the staff alternative's mid-slope transmission alignment would be constructed in part on National Forest System lands, and would also intersect with numerous existing roads on non-National Forest System lands.

USFS revised preliminary 4(e) condition no. 26 specifies the development and implementation of a road and traffic management plan for all USFS roads and unclassified roads needed for project access that would be constructed on National Forest System lands. The plan, to be developed in consultation with the USFS, would identify and map the roads, describe their purpose and use, explain maintenance levels and responsibilities show the locations and status of any gates or barricades, demonstrate authorization for their use, and assess their condition. The plan would specify maintenance and management standards that would provide for traffic safety and minimize erosion and damage to natural resources.

We conclude in section 3.3.7.2 that a plan would be needed to ensure the proper use and maintenance of both temporary and permanent roads necessary to access the project facilities. The staff alternative includes a provision to specify the exact segments of roads that would serve the project and the permanent roads that would need to be included in the project boundary.

Public access (and OHVs, in particular) would create the potential for trampling and soil compaction, dumping, vandalism, noise disturbance, harassment, poaching, collision, wildfire, and introduction of weeds. For this reason, under the staff alternative, the land and road management plan would include methods for closing and obliterating temporary roads following construction; minimizing adverse effects of project-related use; identifying areas of specific concern; providing for regular patrol and enforcement to ensure that closed roads area not being used by the public; and provide for long-term monitoring, reporting, and changes to the plan, as needed. The staff alternative includes a road management plan for non-National Forest System lands that would address the same issues.

The co-applicants propose to achieve a balance of excavated materials and fill at the entire project site and propose to haul up to 776,000 cubic yards of fill along Ortega Highway and South Main Divide Road to the upper reservoir site. In section 3.3.7.2, we conclude that hauling this volume of fill material on Ortega Oaks Highway and South Main Divide Road to the upper reservoir site would significantly affect the flow of traffic on this busy crossroad between Lake Elsinore the California coast. Instead of overtaxing this road, the staff alternative calls for the co-applicants to excavate additional depth at the Decker Canyon upper reservoir site to provide the fill deficit for the dam construction. We estimate that about 10 additional feet would need to be excavated to provide sufficient fill for the dam. Achieving the balance of excavation and fill entirely at the upper reservoir site would greatly reduce the construction truck traffic on Ortega Highway.

The co-applicants also propose several specific measures to improve traffic flow on Grand Avenue and Ortega Highway during construction and to prepare and implement traffic management and control plans. The staff alternative would specify that the co-applicants develop, with County of Riverside Transportation Department consultation, and implement a road and traffic management plan for

non-USFS roads that: (1) details plans to manage construction at road crossings and along access roads; (2) provides a schedule for the volume and timing of construction traffic; (3) describes methods for closing and obliterating temporary roads following construction; (4) minimizes adverse impacts of project-related use; (5) identifies areas of specific concern; and (6) provides for monitoring, reporting, and changes to the plan during the 4.5-year construction period.

We estimate that the annual cost associated with the staff alternative additional excavation at Decker Canyon to achieve the excavation and fill balance at the upper reservoir site would be $732,800. The initial cost of developing co-applicants' traffic plans would be $100,000 with an annual cost of $24,100. The staff alternative traffic plans would add $20,000 initial costs and $2,800 to the annual costs.

Sediment Sampling in Lake Elsinore

Excavations in Lake Elsinore to construct the intake/outlet structure would disturb lakebed sediments that could contain toxins. Water quality testing in Lake Elsinore did not include testing lakebed sediment for toxicity. In section 3.3.7.2, we conclude that excavated material from the lakebed should be disposed of off site. The toxicity of these sediments is unknown. Toxic materials require special handling and disposal. The staff alternative would specify that the co-applicants develop a plan to sample lakebed sediments for toxicity prior to construction and, if toxins are identified, for proper handling and disposal. We estimate that the annual cost for the staff alternative sediment sampling plan would be $7,100 and would be necessary to protect the public from exposure to potentially toxic materials.

Visual Resources Plan

Construction of the proposed project would introduce new visual elements to the landscape both during and following construction. The co-applicants propose to develop and implement a visual resources management plan. The co-applicants' proposed plan would be similar to the scenery conservation plan specified in the USFS revised preliminary 4(e) condition 37. We conclude that such a plan prepared in consultation with the USFS, under either alternative, would help to ensure that the design and materials proposed for project facilities on USFS-lands and any subsequent changes to the project facilities are compatible with the USFS' Land Management Plan's High Scenic Integrity Objectives and related standards for new construction in National Forests. We estimate that the annual cost for the co-applicants' proposed visual resources management plan would be $2,800.

Project Boundary

The co-applicants do not include Lake Elsinore within the proposed project boundary as defined in the exhibit G boundary maps for the project. Lake Elsinore is an integral part of the pumped storage project, serving as the lower reservoir. Under either alternative, inclusion of Lake Elsinore within the project boundary would provide for a complete unit of development. At the conceptual level of design, the co-applicants have not identified the location of temporary access roads for construction or permanent access roads for project operations. Access roads to project facilities, whether public, private, or USFS-owned, would need to be included in the project boundary, under either alternative, when the final exhibit G drawings are filed with the Commission. We assume this cost is included in the co-applicants' $12,000,000 allocated to relicensing.

5.2.10 Cultural Resources

Construction at the project sites has the potential to destroy or disturb historic properties. The co-applicants would consult with the USFS or SHPO prior to any ground-disturbing activities and would implement a stop-work procedure if unanticipated discoveries occur during construction. Given that known sites occur near project construction sites, we assume that over a 4.5-year construction period, one

or more unanticipated discoveries would occur. The draft HPMP filed with the Commission in April 2005, includes measures to: (1) complete pre-construction archaeological surveys in the APE; (2) determine the need for intensive surveys; (3) monitor historic properties during construction; (4) appoint a tribal liaison; (5) study the potential effects of ground acceleration on historic buildings; (6) develop a program to monitor archaeological sites for 5 years; and (7) develop a public interpretative program. The co-applicants also would conduct limited paleontological studies at sensitive locations during construction and prepare any fossil remains for curation by a local museum. In section 3.3.9.2, we conclude that co-applicants' proposal, as reflected in the draft HPMP, and including modifications under the staff alternative, would mitigate or avoid adverse effects on historic properties. These measures would address the site-specific needs to take into account historic properties during the construction and operation of the project under either alternative.

The staff alternative would specify that the co-applicants develop and implement a final HPMP that incorporates provisions to avoid or mitigate effects to known and as yet unknown historic properties. The plan would be developed in consultation with the SHPO, Tribes, the BIA, and the USFS, and other entities as appropriate. USFS revised preliminary condition no. 28 specifies that the HPMP accurately define the APE, including the effects of implementing the Section 4(e) condition. As discussed in section 3.3.9.2, the co-applicants' proposed HPMP would address the procedures and substantive requirements of Section 106 of the National Historic Preservation Act. The Commission would execute a Programmatic Agreement providing for the filing of the final revised HPMP with 1 year after license. Shortly thereafter, the final HPMP would then be implemented.

We estimate that the costs for the co-applicants' proposed consultation would be $1,400, the annual cost for addressing unanticipated discoveries during construction would be $16,900, the annual costs for implementing the co-applicants draft HPMP would be $59,300, and the paleontological studies would cost $14,100. We estimate the additional annual cost of filing the final HPMP under the staff alternative would be $2,800.

5.3 FISH AND WILDLIFE AGENCY RECOMMENDATIONS

5.3.1 Recommendations Pursuant to Section 10(j) of the FPA

Under Section 10(j) of the FPA, each hydroelectric license issued by the Commission would include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project.

Section 10(j) of the FPA states that whenever the Commission finds that any fish and wildlife agency recommendations is inconsistent with the purposes and requirement of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendation, expertise, and statutory responsibilities of such agency.

By letter dated April 22, 2005, Interior provided three fish and wildlife recommendations. Table 56 lists Interior's recommendations and presents Commission staff's conclusion as to whether each recommendation is within the scope of Section 10(j), an estimate of the annual cost of each recommendation, and the decision about whether or not to recommend adopting each recommendation as part of the staff alternative. When a recommendation is not adopted, we provide a rationale. Recommendations that Commission staff consider outside the scope of Section 10(j) have been considered under Section 10(a) of the FPA and are addressed in the specific resource sections of this document. The staff alternative includes all current recommendations that Commission staff found to be within the scope of Section 10(j).

Table 56. Fish and wildlife agency Section 10(j) recommendations. (Source: Staff)

No.	Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Commission Staff Recommending?
1.	Lake Elsinore monitoring and remediation plan to reduce or eliminate impacts to nesting shorebirds	Interior	Yes	$22,800	Yes
2.	San Juan Creek drainage monitoring and remediation plan to eliminate or reduce release of water and non-native species from the upper reservoir into San Juan Creek	Interior	Yes	$74,000	Yes
3.	Consistency with existing and proposed HCPs	Interior	No, not a specific measure to protect fish and wildlife	$0	No

Note: HCP – Habitat Conservation Plan

5.3.2 Recommendations Pursuant to Section 10(a)(1) of the FPA

Our recommendation not to adopt Interior 10(j) no. 3 is based on our finding that we could not evaluate the environmental effects that would result from recommending consistency of the LEAPS Project with HCPs that have not yet been developed. Although we do not adopt Interior 10(j) no. 3, we anticipate that our recommendations for specific measures for terrestrial resource protection and mitigation will meet Interior's objectives regarding consistency of the LEAPS Project with existing HCPs. In some cases (e.g., minimum habitat compensation ratios), our recommendations may be more stringent than those that would be required under the Multi-Species HCP, because the Commission's view of acceptable resource trade-offs may differ from the views of the Multi-Species HCP signatories.

In addition to it's section 10(j) recommendations, Interior filed 3 recommendations under section 10(a) for (1) consultation with the FWS on completion of project plans and designs for measures to protect, mitigate damages to, and enhance fish and wildlife, (2) notification to FWS and remedial actions under emergency or special conditions arise where fish or wildlife are being killed, harmed, or endangered, and (3) a request for a specific ESA reopener in any license issued for the proposed project. As discussed in section 5.2.6, the staff alternative measures would provide adequate protection for special status plants and animals, including federally listed species, starting at project design and extending through the term of any license issued for the project.

5.4 CONSISTENCY WITH COMPREHENSIVE AND OTHER RESOURCE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, and conserving waterways affected by the project. Under section 10(a)(2), federal and state agencies filed comprehensive plans that address various resources in California. Fourteen of these plans address resources relevant to the LEAPS Project:

California Advisory Committee on Salmon and Steelhead Trout. 1988. Restoring the balance. 1988 annual report. Sausalito, California. 84 pp.

California Department of Fish and Game. 1996. Steelhead restoration and management plan for California. February 1996. 234 pp.

California Department of Parks and Recreation. 1998. Public Opinions and Attitudes on Outdoor Recreation in California – 1997. March 1998. 72 pp. and appendices.

California Department of Parks and Recreation. 1988. California Outdoor Recreation Plan. Sacramento, California. June 1988. 223 pp.

California Department of Parks and Recreation. 1994. California Outdoor Recreation Plan -1993. Sacramento, California. April 1994. 154 pp. and appendices.

California Department of Water Resources. 1983. The California water plan: projected use and available water supplies to 2010. Bulletin 160-83. Sacramento, California. December 1983. 268 pp. and attachments.

California Department of Water Resources. 1994. California water plan update. Bulletin 160-93. Sacramento, California. October 1994. Two volumes and executive summary.

California State Water Resources Control Board. 1975. Water quality control plan report. Sacramento, California. Nine volumes.

California—The Resources Agency. Department of Parks and Recreation. 1983. Recreation needs in California. Sacramento, California. March 1983. 39 pp. and appendices.

Forest Service. 1986. Cleveland National Forest land and resources management plan. Department of Agriculture, Corona, California. February 1986.

State Water Resources Control Board. 1999. Water quality control plans and policies. Adopted as part of the State Comprehensive Plan. April 1999. Three enclosures.

Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American waterfowl management plan. Department of the Interior. May 1986. 19 pp.

Fish and Wildlife Service. Undated. Fisheries USA: The recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, DC. 11 pp.

National Park Service. 1982. The nationwide rivers inventory. Department of the Interior, Washington, DC. January 1982. 432 pp.

5.5 RELATIONSHIP OF LICENSE PROCESS TO LAWS AND POLICIES

5.5.1 Section 401 of the Clean Water Act—Water Quality Certification

By letter dated March 16, 2005, the co-applicants applied to the State Water Board for Water Quality Certification for the LEAPS Project, pursuant to Section 401 of the Clean Water Act. On March 1, 2006, the co-applicants withdrew and refiled individual requests for water quality certifications for both the LEAPS and the TE/VS Interconnect projects. The Water Quality Certification is now due on March 1, 2007.

5.5.2 Section 18 of the Federal Power Act—Authority to Require Fishways

Section 18 of the FPA, 16 USC Section 811, states that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as the secretaries of Commerce

and the Interior may prescribe. By letter dated April 22, 2005, Interior reserved its authority to amend prescriptions. The Secretary of Commerce did not file any fishway prescriptions for this project.

5.5.3 Section 4(e) of the Federal Power Act

Because the proposed LEAPS Project would occupy lands of the Cleveland National Forest and lands administered by BLM and the DOD, the USFS, DOD, and BLM have authority to impose conditions under Section 4(e) of the FPA. The USFS provided preliminary license conditions for the LEAPS Project by letter dated April 27, 2005 and revised preliminary Section 4(e) conditions on June 23, 2006.

The USFS provided 25 standard USFS conditions and 10 project-specific conditions. Condition nos. 1 through 25 are standard conditions that would involve obtaining USFS approval on final project design and changes, yearly consultation with the USFS to ensure the protection and development of natural resources, restrictions and protective measures that should be in place, and project O&M procedures that would enable continued project operations to be consistent with applicable provisions of the Cleveland Nation Forest Land Management Plan.

Condition nos. 26, 27, 28, 33, 34 35, and 36 pertain to development of plans for use of USFS-managed lands (including road and traffic management, recreation facilities, heritage resources, vegetation and invasive weeds management, wildlife management, surface water management, and ground water management). Condition no. 29 pertains to project-specific consultation with the USFS regarding annual employee awareness training pertaining to natural resource issues of importance to the Cleveland National Forest. Condition no. 30 pertains to updates regarding USFS special status plants and wildlife, monitoring needs of existing and future special status species. Condition no. 31 pertains to an action plan for ground-disturbing activities that are not addressed in this EIS. Condition no.32 pertains to the development of detailed monitoring plans.

5.5.4 Endangered Species Act

Section 7 of the ESA requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. By letter dated April 22, 2005, Interior indicated that the federally threatened coastal California gnatcatcher and the federally endangered arroyo toad, Stephens' kangaroo rat, and Munz's onion are known to occur within the project vicinity. No individuals of these species were observed during surveys associated with the project. We also evaluated the effect of the project on other listed species that may occur in the project area (table 57). Table 57 summarizes our determinations regarding the effect of the proposed action on these species, based on the analyses presented in section 3.3.5, *Threatened and Endangered Species,* and our recommendations as presented in section 5.2, *Comprehensive Development and Recommended Alternative*.

Table 57. Summary of species and critical habitat findings under the staff alternative.

Species	Species Status	Species Finding	Critical Habitat Finding
Southern California steelhead (*Oncorhynchus mykiss*)	E	Likely to adversely affect	Not likely to adversely affect
San Diego thornmint (*Acanthomintha ilicifolia*)	T	Likely to adversely affect No effect	No effect
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)	E	Likely to adversely affect No effect	No effect

Species	Species Status	Species Finding	Critical Habitat Finding
Mexican flannelbush (*Fremontodendron mexicanum*)	E	No effect	No effect
Spreading navarretia (*Navarretia fossalis*)	T	Likely to adversely affect No effect	No effect
Nevin's barberry (*Berberis nevinii*)	E	Likely to adversely affect No effect	No effect
Munz's onion (*Allium munzii*)	E	Likely to adversely affect	No effect
Slender-horned spine flower (*Dodecahema leptoceras*)	E	Likely to adversely affect	No effect
San Diego ambrosia (*Ambrosia pumila*)	E	Likely to adversely affect	No effect
California Orcutt grass (*Orcuttia californica*)	E	Likely to adversely affect	No effect
Thread-leaved brodiaea (*Brodiaea filifolia*)	T	Likely to adversely affect	No effect
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)	E	Likely to adversely affect	No effect
Quino checkerspot butterfly (*Euphydryas edith quino*)	E	Likely to adversely affect	Likely to adversely affect
Arroyo toad (*Bufo californicus*)	E	Likely to adversely affect	No effect
California red-legged frog (*Rana aurora draytonii*)	T	No effect	No affect
Southwestern willow flycatcher (*Empidonax traillii extimus*)	E	Likely to adversely affect	No effect
Least Bell's vireo (*Vireo bellii pusillus*)	E	Likely to adversely affect	No effect
Bald eagle (*Haliaeetus leucocephalus*)	T	Not likely to adversely affect	No effect
Coastal California gnatcatcher (*Polioptila californica*)	T	Likely to adversely affect	Likely to adversely modify proposed critical habitat
Stephens' kangaroo rat (*Dipodomys stephensi*)	E	Likely to adversely affect	Likely to adversely affect

The basis for our findings is summarized below.

Southern California Steelhead

We conclude that the construction of the LEAPS Project may affect, but would not likely adversely affect the southern California steelhead or steelhead habitat. Only the lower 6 or 7 miles of San Mateo Creek are accessible to southern steelhead trout and spawning occurs in the downstream reach during periods of significant precipitation. Steelhead trout have not been identified in the tributaries to San Mateo Creek that would be crossed by transmission lines. A combination of BMPs during

construction and water quality monitoring during the life of the project would reduce, but not eliminate, the potential risk of adverse impacts from the downstream transport of sediments.

Mexican Flannelbush

We conclude that the construction of the LEAPS Project would have no effect on Mexican flannelbush, because no suitable habitat is located at sites where project features would be constructed

San Diego Thornmint, San Diego Button-Celery, Mexican Flannelbush, Spreading Navarretia, and Nevin's Barberry

We conclude that construction and operation of the LEAPS Project is likely to adversely affect San Diego thornmint, San Diego button-celery, spreading navarretia, and Nevin's barberry. Based on a comparison of the known range and habitat associations of these species with the project area's location, elevation, soils, and vegetation cover types, we think it is unlikely that they occur in the project area. However, because these plants are rare, their habitat requirements are not as well understood as many other native species, and it is possible that they are present. None were identified during MBA's surveys. MBA's surveys covered many, but not all, of the areas that would be disturbed by construction. For this reason, we recommend that the co-applicants conduct pre-construction surveys at all sites where ground disturbance would occur. If these species are identified, we recommend the co-applicants consult with FWS (and the USFS, if plants are located on National Forest System lands) to determine how project features could be re-sited or re-aligned to avoid impacts. Flexibility in project design and implementation of construction BMPs (such as those discussed in section 3.3.4.2, Vegetation) should minimize the risk of adverse effects during construction. To minimize the risk of adverse impacts during operation, we recommend the co-applicants develop and implement a threatened and endangered species management plan. The plan should specify protective measures, including road management and weed management, a monitoring program, and mechanisms for consultation, reporting and adaptive management. Such a plan would reduce, but would not eliminate, the potential for adverse effects during the life of the project, as a result of fuel management activities, road and transmission line maintenance, and unauthorized public use of temporary and permanent access roads.

Munz's Onion, Slender-horned Spine Flower, San Diego Ambrosia, California Orcutt Grass, Thread-leaved Brodiaea, and San Jacinto Valley Crownscale

We conclude that construction of the LEAPS Project is likely to adversely affect Munz's onion, slender-horned spine flower, San Diego ambrosia, California Orcutt grass, thread-leaved brodiaea, and San Jacinto Valley crownscale. Suitable habitat for these species occurs in the project area. None of these species were observed during MBA's surveys. MBA's surveys covered many, but not all, of the areas that would be disturbed by construction. For this reason, we recommend pre-construction surveys and development and implementation of a threatened and endangered species management plan, as described above.

Quino Checkerspot Butterfly

We conclude that construction of the LEAPS Project is likely to adversely affect the Quino checkerspot butterfly and designated critical habitat. MBA's surveys did not indicate the presence of any Quino checkerspot butterflies, but about 1.75 acres of designated critical habitat for this species would be removed to install transmission line towers at the northernmost end of the proposed transmission alignment and 35 acres would be removed to build the northern substation near Lee Lake. Construction of three transmission towers outside designated critical habitat would remove about 0.75 acre of potential habitat in the same vicinity. Construction of temporary access roads could affect additional habitat. Vegetation management and unauthorized public use of temporary access roads, if any are constructed in

butterfly habitat, could adversely affect habitat quality during project operation. Implementation of BMPs during construction and protective measures such as weed management and road management would reduce, but not eliminate, the risk of adverse effects through the life of the project.

Arroyo Toad

We conclude that construction of the LEAPS Project is likely to adversely affect the arroyo toad, which is known to occur in Los Alamos Creek and Tenaja Creek, and could also occur in Temescal Wash. No occurrences of this species are documented at sites that would be affected by construction, and MBA's surveys did not indicate the presence of any arroyo toads in the project area. However, about 1.0 acre of potential habitat may be removed for the construction of five transmission towers where the proposed transmission alignment would cross these creeks. Construction of temporary access roads could affect additional habitat. Vegetation management and unauthorized public use of temporary access roads, if any are constructed in arroyo toad habitat, could adversely affect habitat quality during project operation. Implementation of BMPs during construction and protective measures such as weed management and road management plans would reduce, but not eliminate, the risk of adverse effects through the life of the project.

California Red-legged Frog

We conclude that construction of the LEAPS Project would not affect the California red-legged frog. Although Los Alamos Creek and Tenaja Creek could provide suitable habitat, there are no known occurrences in either watershed, and MBA's surveys did not indicate the presence of this species. Only one population (three adult males) of California red-legged frogs is known to exist in Riverside County, and none are known in Orange or San Diego counties. FWS considers the potential for recovery in southern California to be low because there are few existing populations, habitat is generally of medium quality, and threats to its existence are high, due to human activities and competing land uses (FWS, 2002).

We conclude that construction of the project would not affect designated critical habitat. No designated critical habitat exists in Riverside, Orange, or San Diego counties.

Southwestern Willow Flycatcher and Least Bell's Vireo

We conclude the project is likely to adversely affect the southwestern willow flycatcher and least Bell's vireo. These species were not detected during surveys, but suitable habitat is present along the transmission line route, and construction of transmission towers could affect about 0.5 acre of riparian shrub at Temescal Wash and Tenaja Creek crossings. Construction of temporary access roads could affect additional habitat. Vegetation management and unauthorized public use of temporary access roads, if any are constructed in southwestern willow flycatcher or least Bell's vireo habitat, could adversely affect habitat quality during project operation. Implementation of BMPs during construction and protective measures such as weed management and road management plans would reduce, but not eliminate, the risk of adverse effects through the life of the project.

Bald Eagle

We conclude the project may affect, but would not likely adversely affect, the bald eagle. Under current conditions, bald eagles are rarely seen in the project area. Construction would not remove habitat, alter the prey base, or increase disturbance. The presence of a transmission line would represent a very low level of risk, because it would be designed to minimize the risk of electrocution and collision. As bald eagle populations in the state and in the county increase, however, bald eagle use may be more frequent, and monitoring would be needed to ensure that avian/power line interactions could be identified and addressed without delay.

Coastal California Gnatcatcher

We conclude that construction of the LEAPS Project is likely to adversely affect the coastal California gnatcatcher. No coastal California gnatcatchers were observed during the co-applicants' surveys, but the USFS has documented occupied habitat along the northern segment of the proposed transmission line. Construction of transmission towers would affect about 38.5 acres of designated critical habitat along the northern segment of the transmission alignment and at the northern substation, about 1 acre nearby, and about 30.5 acres of potential habitat at the Santa Rosa powerhouse site. Construction of temporary access roads could affect additional habitat. Vegetation management and unauthorized public use of temporary access roads, if any are constructed in coastal California gnatcatcher habitat, could adversely affect habitat quality during project operation. Implementation of BMPs during construction and protective measures such as weed management and road management plans would reduce, but not eliminate, the risk of adverse effects through the life of the project.

Stephens' Kangaroo Rat

We conclude the project is likely to adversely affect the Stephens' kangaroo rat. The co-applicants did not conduct surveys for this species, but it is known to occur in Riverside County. Construction of transmission towers and the northern substation would affect about 38.5 acres of habitat within the Stephens' Kangaroo Rat Fee Assessment Area or Lake Mathews-Estelle Mountain Core Reserve. Construction of temporary access roads could affect additional habitat. Vegetation management and unauthorized public use of temporary access roads, if any are constructed in Stephens' kangaroo rat habitat, could adversely affect habitat quality during project operation. Implementation of BMPs during construction and protective measures such as weed management and road management plans would reduce, but not eliminate, the risk of adverse effects through the life of the project. We are also recommending the co-applicants provide habitat mitigation at a ratio of 1:1 for losses of chaparral and non-native grasslands, coastal sage scrub, and oak woodland.

Consultation with the U.S. Fish and Wildlife Service

By letter dated June 9, 2006, FWS concurred with our finding of "no effect" on Mexican flannelbush, "not likely to adversely affect" the bald eagle, and "not likely to adversely affect" California red-legged frog critical habitat. FWS did not discuss our findings of "likely to adversely affect" Quino checkerspot butterfly, coastal California gnatcatcher, and Stephens' kangaroo rat. FWS disagreed with our findings of either "no effect" or "not likely to adversely affect" regarding all the other species discussed above, and requested additional information about the project. Table 58 shows the requests and our responses.

Table 58. Information requested in FWS letter dated June 9, 2006, and staff responses. (Source: Staff)

Requested Information	Staff Response
Identification of which alternative represents the proposed action submitted for consultation	The staff alternative is the action submitted for consultation.
Information about the proposed locations of access roads, habitat that would be affected, any survey results, and analysis of effects associated with road building, use and maintenance on federally listed species	Locations of many project features have not been finalized at this time. We recommend the co-applicants consult with FWS (and the USFS, on National Forest System lands) to design and conduct surveys where they are needed; prepare detailed reports and maps for FWS (and USFS) review and comment; and design project features to avoid or minimize adverse effects on listed species. We recommend that if listed species are present, the co-applicants consult with the

Requested Information	Staff Response
	agencies to develop and implement a threatened and endangered species management plan. We also recommend development and implementation of road management and vegetation management plans that should be protective of listed species, and habitat mitigation at a minimum ratio of 1:1 for all habitats that are converted to project use.
Information about vegetation management measures, and how they would affect listed species	Detailed information about vegetation management is not available at this time, but we recommend development and implementation of plans to manage vegetation and noxious and invasive weeds.
Information about noxious weed control, and how it would affect listed species	Detailed information about vegetation management is not available at this time, but we recommend development and implementation of plans to manage vegetation and noxious and invasive weeds.
Information about project effects on the Stephens' kangaroo rat Core Reserve lands	This information is shown in figure 15 and discussed in section 3.3.5.2. The staff alternative recommends 1:1 mitigation for impacts on chaparral and non-native grasslands.
Analysis of effects on arroyo toad that could occur in the event of a dam failure with release of water into San Juan Creek, and remediation measures that would be implemented.	Effects of a dam break on arroyo toads have not been studied in depth. We conclude the risk of a failure is small because the dam would be designed to comply with the Commission's Engineering Guidelines for the Evaluation of Hydropower Projects as well as State criteria. High hazard dams such as those proposed for the LEAPS Project must be able to safely pass the probable maximum flood, and to withstand the maximum credible earthquake. Both the Commission and the State of California routinely inspect dams and the Commission requires a rigorous dam safety review during the design process and every 5 years during project operations. However, the staff alternative includes a recommendation for the co-applicants to develop and implement a monitoring and remediation plan for San Juan Creek, as discussed in section 5.2.4, *Preventing Interbasin Water Transfers*.

5.6.5 National Historic Preservation Act

Relicensing is considered an undertaking within section 106 of the National Historic Preservation Act, as amended (P.L.89-665; 16 USC 470). Section 106 requires that every federal agency "take into account" how each of its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, TCPs, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register. As the lead federal agency for issuing a license, the Commission is responsible for ensuring that the licensee will take all necessary steps to "evaluate alternatives or modifications" that "would avoid, minimize, or mitigate any adverse effects on historic properties" for the term of any license involving the project. The lead agency also must consult with the SHPO(s), as well as with other land management agencies where the undertaking may have an effect, and with Indian tribes who may have cultural affiliations with affected properties involving the

undertaking. The overall review process involving Section 106 is administered by the Advisory Council on Historic Preservation, an independent federal agency.

To meet the requirements of Section 106, the Commission will execute the Programmatic Agreement to take into account the effects on historic properties from the operation of the LEAPS Project. The terms of the Programmatic Agreement would ensure that the co-applicants would address and treat all historic properties identified within the project area through the HPMP. The HPMP entails ongoing consultation involving historic properties for the license term.

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Section 6
Literature Cited
Pages 6-1 through 6-14
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6.0 LITERATURE CITED

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COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Section 7
List of Preparers
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FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
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Section 8
List of Recipients
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COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Appendix A
USFS Review of Special Use Permit Application
Pages A-1 to A-2
FEIS

APPENDIX A

Review of Special Use Application for the Transmission Line Proposal Relative to the Need for Federal Land and Non-Federal Alternatives

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REVIEW OF SPECIAL USE APPLICATION FOR THE TRANSMISSION LINE PROPOSAL RELATIVE TO THE NEED FOR FEDERAL LAND AND NON-FEDERAL ALTERNATIVES

Nevada Hydro Company and Elisnore Valley Municipal Water District have filed an application with the Cleveland National Forest for a "stand alone" transmission line authorization. The U.S. Forest Service (USFS) has accepted this application and is evaluating this proposal in conjunction with the hydropower license application filed with the Federal Energy Regulatory Commission. When the USFS screens proposals, the need for federal land is evaluated to determine if the proposal is in the public interest. In the case of the "transmission line only" proposal, the applicants provided information used to evaluate other alternative alignments that were reasonably available to the applicant that did not require National Forest System lands. This appendix briefly summarizes the information considered by the USFS.

San Diego Gas & Electric Company proposed the Valley Rainbow transmission line interconnection project in 2001. Although the project was denied by the California Public Utility Commission (CPUC) in 2003, the CPUC staff released a preliminary report on the alternatives screening analysis in November 2002. The co-applicants have incorporated this information into the license application, Volume 3 of 6, Attachment 3. The analysis identified and screened 45 alternatives, including non-wires alternatives. The analysis identified 33 alternative routes that would provide the 500-kilovolt interconnection proposed by the LEAPS Project, 12 of those alternatives required use of National Forest System lands. The proposed routes on the National Forests were significantly constrained. Many crossed wilderness areas or tribal lands, which are essentially unavailable for development. Those routes that did not have wilderness or tribal lands are primarily those routes that have evolved into the alternatives considered in the LEAPS analysis.

Of the 21 alternative routes that did not need National Forest System lands, 15 crossed tribal lands that were not available for development. The remaining six routes were also constrained by land ownership, historic sites, habitat reserves, and displacement of homes and businesses along the right-of-way.

Given the numerous constraints on locating transmission line corridors in the Lake Elsinore area, the USFS concluded during the application screening that National Forest System lands are necessary for the proposed interconnect. It is also evident that alternative locations are not reasonably available to the co-applicants. For the purposes of this analysis, the range of alternatives includes several different routes that were designed to respond to specific issues while meeting the purpose and need of the project. Alternative routes that cross wilderness areas, tribal lands, or densely populated urban areas are not reasonably available to the proponent, and will not be considered in detail.

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COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Appendix C
Revised U.S. Forest Service Preliminary Section 4(e) Conditions
Pages C-1 to C-24
FEIS

APPENDIX C

Revised U.S. Forest Service
Preliminary Section 4(e) Conditions

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File Code: 2770-2
Date: June 22, 2006

Magalie R. Salas
Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Via Electronic Filing

RE: Revised Forest Service Preliminary Section 4(e) Conditions, FERC No. 11858

Dear Secretary Salas:

Enclosed for filing are the Forest Service Revised Preliminary Terms and Conditions for inclusion in the Final EIS. This filing is in response to your notice of Draft EIS Publication, and is consistent with the schedule we filed with our preliminary conditions. We plan to file Final 4(e) conditions within 60 days of publication of the Final EIS.

It is important that the record support our Final Conditions. We have added several additional conditions that were not included in the Draft EIS, so filing revised preliminary conditions will allow us to work with Commission staff to include those conditions in the analysis developed for the Final EIS. We also expect to work closely with staff to respond to the many comments filed on the Draft EIS, and we expect the analysis that results from that work will further support our Final Conditions. Specifically, we have added conditions to address surface and groundwater management, scenery conservation, and habitat mitigation.

Enclosure 1 contains the Revised Preliminary 4(e) Terms and Conditions found to be necessary for the adequate protection and utilization of the Cleveland National Forest. Applicable comprehensive plans include the Cleveland National Forest Land and Resource Management Plan (2006).

Several key components of the proposed project are on reserved lands that are part of the Cleveland National Forest. If the Commission chooses to license this project, they must make an independent determination that the proposed project or the selected alternative is consistent with the purposes of the reservation. The Forest Service offers the following background for the Commission's consideration.

The increased urbanization, ranching, mining, agricultural, and timber production within California in the late 1800's often resulted in significant flooding of downstream areas, affecting commerce as well as communities in Southern California. There also was a public realization of the need for reliable water sources to maintain viability of the developing industries and municipalities. Following the enactment of the Desert Lands Act of 1877 and the Wright Act of 1887, large land parcels with water rights were acquired, first by timber and cattle interests and later by farmers and communities. Under the Wright Act, water districts were formed to divert and deliver water to developing cities, particularly in Southern California. The Forest Reserve

Act, passed in 1891, authorized the establishment of forest reserves from forest and range lands in public domain.

In 1893, President Harrison withdrew 109,920 acres of public domain lands in the Santa Ana Mountains (The Trabuco Canyon Forest Reserve). These lands were specifically withdrawn for watershed protection. After the establishment of the Trabuco Canyon Reserve and The San Jacinto Forest Reserve in 1897, these areas were designated as a National Forest in 1908 and named in honor of President Grover Cleveland.

The Organic Act of June 4, 1897, stated that 'no national forest shall be established, except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows', and established the National Forests to initially halt wasteful exploitation of the public lands and forests. Though opposition by vested interests slowed progress, policies dealing with timber management, mining, watershed protection, wildlife management, grazing, and recreation emerged and evolved into the multiple-use concept practiced now. However, the Cleveland National Forest, located in Southern California, was atypical. Created with public support, it was from the beginning a watershed forest; all of its problems and policies centered on protection of the watersheds which provide water to the surrounding agricultural areas and towns, especially the city of San Diego. It was to protect their watersheds that Californians immediately began demanding Forest Reserves. The Cleveland National Forest became one of the first in the new system and had its basis in the 50,000 acre Trabuco Canyon Forest Reserve, created by President Harrison in February 1893 (The Journal of San Diego History , Fall 1975, Volume 21, Number 4).

Based on our review, we would conclude that project features that would eliminate critical watershed components such as riparian areas and springs would not be consistent with the purposes of the reservation. The staff alternative, which avoids impacts to unique riparian habitat, and provides transmission line locations that would not hinder fire suppression actions necessary to protect watershed values, would be consistent with the reservation.

Please contact Virgil Mink at (951) 736-1811 ext. 3277 if you have any questions.

Sincerely,

/S/ BETH G.
PENDLETON
(FOR)

BERNARD WEINGARDT
Regional Forester

Enclosure

Enclosure 1

PACIFIC SOUTHWEST REGION
USDA FOREST SERVICE
Revised preliminary 4(e) TERMS AND CONDITIONS AND 10(a) Recommendations

Lake Elsinore Advance Pump Storage Hydroelectric Project
FERC Project No. 11858

Index

REVISED PRELIMINARY 4(e) Terms and Conditions

Lake Elsinore Advanced Pumped Storage Hydroelectric Project
FERC Project No. 11858

I. Introduction

The Forest Service hereby submits its Revised Preliminary 4(e) Terms and Conditions (Conditions) and Section 10(a) recommendations, as applicable, for the Lake Elsinore Advanced Pumped Storage Hydroelectric Project (FERC Project No. 11585), in accordance with 18 CFR 4.34(b)(1)(i). Wording in [brackets] in these conditions indicates that the Forest Service determined that this portion of the condition was not within its jurisdiction; however the Forest Service recommends it be included in the license under Section 10(a) of the Federal Power Act.

Section 4(e) of the Federal Power Act states the Commission may issue a license for a project within a reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired. This is an independent threshold determination made by FERC, with the purpose of the reservation defined by the authorizing legislation or proclamation (see Rainsong v. FERC, 106 F.3d 269 (9th Cir. 1977). The Forest Service, for its protection and utilization determination under Section 4(e) of the FPA may rely on broader purposes than those contained in the original authorizing statutes and proclamations in prescribing conditions (see Southern California Edison v. FERC, 116F.3d 507 (D.C. Cir. 1997)). These terms and conditions are based on those resource and management requirements enumerated in the Organic Administration Act of 1897 (30 Stat. 11), the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215), the National Forest Management Act of 1976 (90 Stat. 2949), and any other law specifically establishing a unit of the National Forest System or prescribing the management thereof (such as the Wilderness Act or the Wild and Scenic Rivers Act), as such laws may be amended from time to time, and as implemented by regulations and approved Land and Resource Management Plans prepared in accordance with the National Forest Management Act. Specifically, the 4(e) conditions are based on the Land and Resource Management Plan (as amended) for the Cleveland National Forest, as approved by the Regional Forester of the Pacific Southwest Region.

Pursuant to Section 4(e) of the Federal Power Act, the Secretary of Agriculture, acting by and through the Forest Service, considers the following conditions necessary for the adequate protection and utilization of the land and resources of the Cleveland National Forest. License articles contained in the Federal Energy Regulatory Commission's (hereinafter referred to as the Commission) Standard Form L-2 (revised October 1975) issued by Order No. 540, and dated October 31, 1975, cover general requirements. Section II of this document includes standard conditions deemed necessary for the administration of National Forest System lands. Section III covers specific requirements for protection and utilization of National Forest System lands and shall also be included in any license issued.

II. Standard Forest Service Conditions

Condition No. 1— Requirement to Obtain a Forest Service Special-Use Authorization

The Licensee shall secure a special-use authorization from the Forest Service for the occupancy and use of National Forest System lands. The licensee shall obtain the executed authorization before beginning ground-disturbing activities on National Forest System lands.

The licensee may commence ground-disturbing activities authorized by the license and special-use authorization no sooner than 60 days following the date the licensee files the Forest Service special-use authorization with the Commission, unless the Commission prescribes a different commencement schedule.

In the event there is a conflict between any provision of the license and Forest Service special-use authorization, the special-use authorization shall prevail to the extent that the Forest Service, in consultation with the Commission, deems necessary to protect and utilize National Forest System resources.

Condition No. 2—Modification of 4(e) Conditions After Biological Opinion or Water Quality Certification

The Forest Service reserves the right, after notice and opportunity for comment, to modify these conditions, if necessary, to respond to any Final Biological Opinion issued for this Project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this Project by the State Water Resources Control Board or Army Corps of Engineers.

Condition No. 3—Forest Service Approval of Final Design

Before any new construction of the Project occurs on National Forest System lands, the Licensee shall obtain prior written approval of the Forest Service for all final design plans for Project components, which the Forest Service deems as affecting or potentially affecting National Forest System resources. The Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein and in the Special Use Permit. As part of such written approval, the Forest Service may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by the Forest Service based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by the Forest Service, the Commission, or the Licensee to be a substantial change, the Licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.

Condition No. 4—Approval of Changes

Notwithstanding any Commission approval or license provisions to make changes to the Project when such changes directly affect National Forest System lands, the Licensee shall obtain written approval from the Forest Service prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the Forest Service for such changes. The Licensee shall file an exact copy of this report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this license, nor shall it affect the Licensee's obligation to comply with Commission requirements.

Condition No. 5—Consultation

Each year between February 15 and April 15, the Licensee shall consult with the Forest Service with regard to measures needed to ensure protection and utilization of the National Forest resources affected by the Project. Within 60 days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service. The Forest Service reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the 4(e) conditions that require measures necessary to accomplish protection and utilization of National Forest resources.

When Forest Service section 4(e) conditions require the Licensee to file a plan with the Commission that is approved by the Forest Service, the Licensee shall provide the Forest Service a minimum of 60 days to review and approve the plan before filing with the Commission. Upon Commission approval, the Licensee shall implement Forest Service required and approved plans.

Condition No. 6—Surrender of License or Transfer of Ownership

Prior to any surrender of this license, the Licensee shall provide assurance acceptable to the Forest Service that Licensee shall restore any project area directly affecting National Forest System lands to a condition satisfactory to the Forest Service upon or after surrender of the license, as appropriate. The restoration plan shall identify the measures to be taken to restore National Forest System lands and shall include adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the Project, the Licensee shall assure, in a manner satisfactory to the Forest Service, that the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by the Forest Service to assist in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by the Forest Service, to estimate the potential costs associated with surrender and

restoration of any Project area directly affecting National Forest System lands to Forest Service specifications. In addition, the Forest Service may require the Licensee to pay for an independent audit of the transferee to assist the Forest Service in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 7—Hazardous Substances Plan

Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for Project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed.

At a minimum, the plan must require the Licensee to (1) maintain in the Project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the Project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the Project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts.

Condition No. 8—Use of Explosives

Use of explosives shall be consistent with state and local requirements.

1. The Licensee shall use only electronic detonators for blasting on National Forest System lands and Licensee adjoining property, except near high-voltage powerlines. The Forest Service may allow specific exceptions when in the public interest.
2. In the use of explosives, the Licensee shall exercise the utmost care not to endanger life or property and shall comply with the requirements of the Forest Service. The Licensee shall contact the Forest Service prior to blasting to obtain the requirements from the Forest Service. The Licensee shall be responsible for any and all damages resulting from the use of explosives and shall adopt precautions to prevent damage to surrounding objects. The Licensee shall furnish and erect special signs to warn the public of the Licensee's blasting operations. The Licensee shall place and maintain such signs so they are clearly evident to the public during all critical periods of the blasting operations, and shall ensure that they include a warning statement to have radio transmitters turned off.
3. If stored on National Forest System lands. the Licensee shall store all explosives in a secure manner, in compliance with State and local laws and ordinances, and shall mark

all such storage places "DANGEROUS—EXPLOSIVES", or in any alternative manner approved by the Forest Service. Where no local laws or ordinances apply, the Licensee shall provide storage that is satisfactory to the Forest Service and in general not closer than 1,000 feet from the road or from any building or camping area unless otherwise approved by the Forest Service.

4. When using explosives on National Forest System lands, the Licensee shall adopt precautions to prevent damage to landscape features and other surrounding objects. When directed by the Forest Service, the Licensee shall leave trees within an area designated to be cleared as a protective screen for surrounding vegetation during blasting operations. The Licensee shall remove and dispose of trees so left when blasting is complete. When necessary, and at any point of special danger, the Licensee shall use suitable mats or some other approved method to smother blasts.

Condition No. 9—Fire Prevention, Response, and Investigation

A. Hazardous Vegetation Fuel Treatment Plan

Within one year of license issuance or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for Hazardous Vegetative Fuel Treatment on or directly affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for wildfires originating at Project facilities, and to protect Project facilities from adjacent wildfires. At a minimum, the Hazardous Vegetative Fuel Treatment Plan shall:

1. Analyze fuel loading on Cleveland National Forest lands [and other project lands] that extend from the edge of each Project facility area (excluding the area around reservoir shorelines). Maintain fuel profiles within the project area consistent with plan standards set forth in the Cleveland Forest Land Management Plan, guidelines for development and maintenance of wildland urban interface defense and threat zones, and California Public Resource Code.
2. Identify fuel treatment methods to mitigate identified hazard fuels. Such treatment methods shall generally be limited to thinning of small trees, removing excess brush, and reducing fuel load and continuity of surface and ladder fuels.
3. Include a map and schedule of treatments.
4. Assure fire prevention measures will conform to water quality protection practices as enumerated in USDA, Forest Service, Pacific Southwest Region, Water Quality Management for National Forest System Lands in California-Best Management Practices.

The Licensee is responsible for implementing the approved plan.

B. Fire Prevention and Response Plan

Within one year of license issuance or prior to any ground disturbing activities, the Licensee shall file with the Commission a Fire Prevention and Response Plan that is approved by the Forest Service, and developed in consultation with appropriate State and local fire agencies. The plan shall set forth in detail the Licensee's responsibility for the prevention (excluding

fuel treatment as described above), reporting, control, and extinguishing of fires in the vicinity of the Project resulting from Project operations.

At a minimum the plan shall address the following categories:

1. Prevention
    - Availability of fire access roads, community road escape routes, helispots to allow aerial firefighting assistance in the steep canyon, water drafting sites and other fire suppression strategies.
    - Address fire danger and public safety associated with project induced recreation, including fire danger associated with dispersed camping, existing and proposed developed recreation sites, trails, and vehicle access.

2. Emergency Response Preparedness
    - Analyze fire prevention needs including equipment and personnel availability.

4. Reporting
    - Licensee shall report any project related fires to the Forest Service within 24 hours.

5. Fire Control/Extinguishing
    - Provide the Forest Service with a list of the locations of available fire suppression equipment and the location and availability of fire suppression personnel.

Assure fire prevention measures will conform to water quality protection practices as enumerated in USDA, Forest Service, Pacific Southwest Region, Water Quality Management for National Forest System Lands in California-Best Management Practices or its successor.

C. Investigation of Project Related Fires

The Licensee agrees to fully cooperate with the Forest Service on all fire investigations. The Licensee shall produce upon request all material and witnesses not subject to attorney client or attorney work product privilege, over which the Licensee has control, related to the fire and its investigation including:

- All investigation reports
- All witness statements
- All photographs
- All drawings
- All analysis of cause and origin
- All other, similar materials and documents regardless of how collected or maintained

The Licensee shall preserve all physical evidence, and give custody to the Forest Service of all physical evidence requested. The Forest Service shall provide the Licensee with reasonable access to the physical evidence and documents the Licensee requires in order to

defend any and all claims, which may arise from a fire resulting from project operations, to the extent such access is not precluded by ongoing criminal or civil litigation.

Condition No. 10—Road Use by Government

The United States shall have unrestricted use of any road over which the licensee has control, within the project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of National Forest System lands or resources. When needed for the protection, administration, and management of Federal lands or resources, the United States shall have the right to extend rights and privileges for use of the right-of-way and road thereon, to States and local subdivisions thereof, as well as to other users. The United States shall control such use so as not to unreasonably interfere with the use of the road by the Licensee, safety or security uses, or cause the Licensee to bear a share of costs disproportionate to the Licensee's use in comparison to the use of the road by others.

Condition No. 11—Road Use

The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in the Road and Traffic Management Plan (Condition No. 26). The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Condition No. 12—Maintenance of Improvements

The Licensee shall maintain all its improvements and premises on National Forest System lands to standards of repair, orderliness, neatness, sanitation, architectural character, and safety consistent with applicable Forest Service guidelines and acceptable to the Forest Service. Disposal will be at an approved existing location, except as otherwise agreed by the Forest Service.

Condition No. 13—Safety during Project Construction

Sixty days prior to ground-disturbing activity related to new Project construction on or affecting National Forest System Lands, the Licensee shall file a Safety During Construction Plan with the Commission that is approved by the Forest Service that identifies potential hazard areas and measures necessary to protect public safety. Areas to consider include construction activities near public roads, trails and recreation area and facilities.

The Licensee shall perform daily (or on a schedule otherwise agreed to by the Forest Service in writing) inspections of Licensee's construction operations on or affecting National Forest System while construction is in progress. The Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to the Forest Service on a schedule agreed to by the Forest Service. The inspections must specifically include fire plan compliance, public safety, and environmental protection. The Licensee shall act immediately to correct any items found to need correction to be incompliance with the license.

Condition No. 14—Pesticide Use Restrictions

Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, fish, insects, and rodents on National Forest System lands without the prior written approval of the Forest Service. The Licensee shall submit a request for approval of planned uses of pesticides on National Forest System lands. The request must cover annual planned use and be updated as required by the Forest Service. The Licensee shall provide information essential for review, including a forest-specific pesticide risk assessment, in the form specified. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the request was submitted. In such an instance, an emergency request and approval may be made.

The Licensee shall use on National Forest System lands only those materials registered by the U. S. Environmental Protection Agency for the specific purpose planned. The Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers.

Condition No. 15—Erosion Control Plan

During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the Project.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include:

1. A description of the actual site conditions;
2. Detailed descriptions, design drawings, and specific topographic locations of all control measures;
3. Measures to divert runoff away from disturbed land surfaces;
4. Measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites;

5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources;
6. Measures to dissipate energy and prevent erosion; and,
7. A monitoring and maintenance schedule.

Upon Commission approval, the Licensee shall implement the plan.

Condition No. 16—Valid Claims and Existing Rights

This license is subject to all valid rights and claims of third parties. The United States is not liable to the Licensee for the exercise of any such right or claim.

Condition No. 17—Compliance with Regulations

The Licensee shall comply with the regulations of the Department of Agriculture for activities on NFS lands, and all applicable federal, state, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting NFS lands, to the extent those laws, ordinances, or regulations are not preempted by federal law.

Condition No. 18—Protection of United States Property

The Licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with the license.

Condition No. 19—Indemnification

The Licensee shall indemnify, defend, and hold the United States harmless for any violations incurred under any applicable laws and regulations or for judgments, claims, or demands assessed against the United States caused by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. The licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property in connection with the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under this license. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, the Licensee's obligation to indemnify and hold harmless the United States shall survive all valid claims for actions that occurred prior to such surrender, transfer or termination.

Condition No. 20—Surveys, Land Corners

The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on National Forest System lands are destroyed by an act or omission of the

Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of the Forest Service.

Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 21—Damage to Land, Property, and Interests of the United States

The Licensee has an affirmative duty to protect the land, property and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license.

The Licensee is liable for all damages, costs and expenses associated with damage to the land, property and interests of the United States occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license, including but not limited to damages, costs and expenses resulting from fire. Such damages, costs and expenses shall include, but not be limited to:

1. Fire suppression costs
2. Rehabilitation and restoration costs
3. Value of lost resources
4. Abatement costs
5. Investigative and administrative expenses
6. Attorneys' fees

The Licensee's liability under this condition shall not extend to acts or omissions of parties outside of the Licensee's control. Licensee's contractors or employees of contractors are not considered parties outside the Licensee's control. Damages will be determined by the value of the resources lost or impaired, as determined by the Forest Service. The basis for damages will be provided to the Licensee. The licensee shall accept transaction registers certified by the appropriate Forest Service official as evidence of costs and expenses. The Licensee shall have an opportunity to review the basis for the Forest Service's damages, costs and expenses, and to meet and confer with the Forest Service to resolve any questions or disputes regarding such damages, costs and expenses. After the opportunity for review, the Licensee shall promptly pay to the United States such damages, costs and expenses upon written demand by the United States.

Condition No. 22—Risks and Hazards

As part of the occupancy and use of the project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting NFS lands that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on National Forest

System lands shall be performed after consultation with the Forest Service. In emergency situations, the Licensee shall notify the Forest Service of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not the Forest Service is notified or provides consultation; the Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Condition No. 23—Crossings

Except as otherwise authorized, the Licensee shall maintain existing crossings as required by the Forest Service for all roads and trails that intersect the right-of-way occupied by linear Project facilities (powerline, penstock, ditch, and pipeline) on or affecting National Forest System lands.

Condition No. 24—Access

The Forest Service reserves the right to use or permit others to use any part of the licensed area on National Forest System lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Condition No. 25—Signs

The Licensee shall consult with the Forest Service prior to erecting signs related to safety issues on National Forest System lands covered by the license. Prior to the Licensee erecting any other signs or advertising devices on National Forest System lands covered by the license, the Licensee must obtain the approval of the Forest Service as to location, design, size, color, and message. The Licensee shall be responsible for maintaining all Licensee-erected signs to neat and presentable standards.

III. Project Specific Forest Service Conditions

Condition No. 26—Road and Traffic Management Plan

Within one year of license issuance or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for management of all Forest Service and unclassified roads required by the licensee to access the project area. The Project Road and Traffic Management Plan shall include:

1. Identification of all Forest Service roads and unclassified roads on National Forest System Lands needed for project access, including road numbers.
2. A map of all Forest Service roads and unclassified roads on National Forest System land used for project access, including digital spatial data accurate to within 40 feet, identifying each road by Forest Service essential for review road number.

3. A description of each Forest Service road segment and unclassified roads on National Forest System land needed for project access including:
   - Termini
   - Length
   - Purpose and use
   - Party responsible for maintenance
   - Level of maintenance
   - Structures accessed
   - Location and status of gates and barricades, if any
   - Ownership of road segment and underlying property
   - Instrument of authorization for road use
   - Assessment of road condition and licensee reconstruction needs
   - Rehabilitation of temporary access disturbance
   - Temporary access locations will be gated to prevent unauthorized public vehicle access

Provisions for the licensee to consult with the Forest Service in advance of performing any road construction, realignment, maintenance, or closure involving Forest Service roads.

The licensee shall cooperate with Forest Service on the preparation of a condition survey and a proposed maintenance plan subject to Forest Service approval annually; beginning the first full-year after the Road and Traffic Management Plan has been approved.

[The licensee shall use non-Forest Service roads in accordance with applicable state, county, city, and/or local authority standards.]

The Road and Traffic Management Plan shall identify the licensee's responsibility for road maintenance and repair costs commensurate with the licensee's use and project-induced use. The Road and Traffic Management Plan shall specify road maintenance and management standards; that provide for traffic safety, minimize erosion and damage to natural resources, and that are acceptable to the Forest Service.

Licensee shall be responsible for any new construction, realignment, closure, or other road management actions proposed by the licensee in the future, subject to Forest Service standards in effect at the time, including related studies, analyses or reviews required by Forest Service.

Upon Commission approval, the Licensee shall implement the plan.

Condition No. 27—Recreation Facilities and Administration

Within one year of license issuance, the licensee shall file with the Commission a Recreation Facility Development Plan, approved by the Forest Service, for a recreation facility at the project equipment and material laydown area on National Forest System lands or for an alternative use and/or location as may be approved by the Forest Service.

Condition No. 28 – Heritage Resources Management Plan

The Licensee shall file with the Commission, within one year following license issuance, or prior to any ground disturbing activities, a Heritage Resources Management Plan (HRMP), approved by the Forest Service, for the purpose of protecting and interpreting heritage resources. The HRMP is tiered to a Programmatic Agreement, to which the Forest Service will be a signatory, as defined by 36 CFR 800, and implements regulations of the National Historic Preservation Act. The Licensee shall consult with the State Historic Preservation Officer, Native American Tribes, Forest Service, and other applicable agencies and communities during the preparation of the Plan. The HRMP shall accurately define the area of potential effects, including effects of implementing Section 4(e) conditions, Native American traditional cultural values, and Project-induced recreational impacts to archaeological properties on or affecting National Forest System lands. The HRMP shall also provide measures to mitigate the identified impacts, including a monitoring program, a patrolling program, and management protocols for the ongoing protection of archaeological properties.

If, prior to or during ground-disturbing activities or as a result of project operations, items of potential cultural, historical, archaeological, or paleontological value are reported or discovered, or a known deposit of such items is disturbed on National Forest System lands, the Licensee shall immediately cease work in the area affected. The Licensee shall then: (1) consult with the California State Historic Preservation Officer (SHPO) and the Forest Service about the discovery; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places; (3) base the site-specific plan on recommendations of the SHPO, the Forest Service, and Secretary of the Interior's Standards and guidelines for Archaeology and Historic Preservation; (4) file the site specific plan for Commission approval, together with the written comments of the SHPO and the Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by the Commission that the requirements have been fulfilled.

Upon Commission approval, the Licensee shall implement the plan.

Condition No. 29—Annual Employee Awareness Training

The licensee shall, beginning the first full calendar year after license issuance, provide annual employee awareness training in coordination with the Forest Service. The goal of the training shall be to familiarize the licensee's maintenance and operations staff with local Forest Service issues. Topics to be covered in this training include local resource issues, special status species, invasive weeds, procedures for reporting to the Forest Service, and Forest Service orders that pertain to the Cleveland National Forest lands in the vicinity of the project.

Information on special status species and invasive weeds and their locations in the project area shall be provided to licensee's field personnel.

Condition No. 30—Special Status Species

The Licensee shall, beginning the first full calendar year after license issuance, in consultation with the Forest Service, annually review the current list of special status plant and wildlife species (species that are, Forest Service Sensitive, Cleveland National Forest Watch List, or U.S. Fish and Wildlife Service Federally listed) that might occur on National Forest System Lands in the project area directly affected by project operations. When a species is added to one or more of the lists, the Forest Service, in consultation with the Licensee, shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on such National Forest System Lands. For such newly added species, if the Forest Service determines that the species is likely to occur on such National Forest System Lands, the Licensee shall develop and implement a study plan in consultation with the Forest Service to assess the effects of the Project on the species. The Licensee shall prepare a report on the study including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to the Forest Service for review and approval. The Licensee shall file the report, including evidence of consultation, with the Commission and shall implement those resource management measures required by the Commission.

Condition No. 31—Ground Disturbing Activities

Ground disturbing activities on or affecting National Forest System lands may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a collection agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis and documentation of the proposed activities.

Condition No. 32—Environmental Monitoring and Adaptive Management

The licensee shall, within six months after license issuance, or as otherwise indicated, and in consultation with the Forest Service and appropriate governmental agencies, develop detailed monitoring and adaptive management plans consistent with the applicable conditions provided herein. The licensee shall provide the final detailed plans, along with all agency comments received and an explanation for any such comments not incorporated, to the Commission for final approval. The licensee shall perform the environmental monitoring and adaptive management as approved by the Commission. It is anticipated that certain details of the environmental monitoring (e.g., specific years of sampling and/or specific study sites) and management may need modification during development of detailed study plans or during subsequent implementation of the environmental monitoring. All such modifications shall be developed in consultation with the Forest Service and appropriate governmental agencies, and approved by these

agencies and provided to the Commission before implementation. Where years are specified, year one is the first full calendar year after issuance of the new license.

Condition No. 33 -- Vegetation and Invasive Weed Management Plans

Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Vegetation and Invasive Weed Management Plan developed in consultation with the Forest Service and the appropriate government agencies. Invasive weeds will be those weeds identified in the California Department Food and Agriculture (CDFA) code, and other non-native species of concern identified by the Forest Service and other resource agencies. The plan will address both aquatic and terrestrial invasive weeds within the project boundary and adjacent to project features directly affecting National Forest System lands including roads and distribution and transmission lines.

1) The Invasive Weed Plan will include and address the following elements:

- Inventory and mapping of new populations of invasive weeds using a Forest Service compatible database and GIS software. The Invasive weed GIS data layer will be updated annually and shared with other resource agencies.
- Weed risk assessment.
- An Integrated Pest Management approach for invasive weed control (IPM evaluates alternatives for managing forest pest populations, based on consideration of pest-host relationships).
- Development of a schedule for control of all known A, B, Q (CDFA) and selected other invasive weed species, designated by resource agencies.
- On-going monitoring of known populations of invasive weeds for the life of the license in locations tied to Project actions or effects, such as road maintenance, at project facilities, O&M activities, new construction sites, etc. to evaluate the effectiveness of re-vegetation and invasive weed control measures.
- Action and/or strategies to prevent and control spread of known populations or introductions of new populations, such as: 1) public education and signing, 2) vehicle/equipment wash stations, 3) use of certified weed-free hay or straw for all construction or restoration needs, and 4) avoidance of use of gravel and fill from known weed infested borrow pits.

New infestations of A & B rated weeds shall be controlled within 12 months of detection or as soon as is practical and feasible. At specific sites where other resource objectives need to be met, all classes of invasive weeds may be required to be treated.

Monitoring will be done in conjunction with other project maintenance and resource surveys, so as not to require separate travel and personnel. Monitoring information, in database and GIS formats, will be provided to the Forest Service as part of the annual consultation on affected National Forest resources (Condition No. 5). To assist with this monitoring requirement, training in invasive plant identification will be provided to Project employees and contractors by the Forest Service to assure that project staff is aware of the current location of invasive weeds and how to identify the invasive weeds likely to occur in the project area.

Licensee shall restore/revegetate areas where treatment has eliminated invasive weeds in an effort to eliminate the reintroduction of invasive weed species. Project-induced ground disturbing activities shall be monitored annually for the first 3 years after disturbance to detect and map new populations of Invasive weeds.

2) The Vegetation Management plan shall include and/or address the following elements:

- Hazard tree removal and trimming;
- Powerline/transmission line clearing to comply with electrical safety and fire clearance requirements;
- Vegetation management for native habitat and biodiversity improvement;
- Revegetation of disturbed sites (including plant palette, planting methods, plant densities, propagation materials, and plant maintenance);
- Soil fertility and moisture analysis, soil grading, soil amendments, soil protection and erosion control, including use of certified weed free straw;
- Use of clean, weed free seed with a preference for locally collected seed,;
- Use of approved mixes of plant species native to the Cleveland National Forest for restoration or erosion control purposes;
- Irrigation amounts, methods, and schedule;
- Pest treatment, monitoring, and prevention methods and schedule;

Upon Commission approval, the Licensee shall implement the plan.

Condition No. 34—Wildlife Management

The licensee shall, within one year after license issuance, implement the following raptor/avian safety measures on National Forest System lands or on areas directly affecting National Forest System lands to maintain and enhance existing native wildlife species potentially affected by the project:

- All power lines, power stations, and other facilities on or affecting National Forest System lands shall be constructed to conform with the "Suggested Practices for Raptor Protection on Power Lines" by the Avian Powerline Interaction Committee (1996), including marking the power lines themselves if they are adjacent to Lake Elsinore or in a flyway where bird strikes may occur.

Condition No. 35—Surface Water Resources Management Plan

The Licensee shall within 6 months after license issuance file with the Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the Project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect ground water related surface water and other ground water dependent resources. At a minimum the plan shall:

1. Develop in consultation with and approved by Forest Service technical specialists and their consultants an inventory of springs and other water courses within 1 mile of Morrell and Decker canyon and their related riparian areas. The inventory shall include water chemistry and physical analysis in addition to monthly and annual hydrographs. Riparian

areas shall be delineated and inventoried. Inventories shall include flora and fauna specific to each water source and shall also include special indicator species (i.e. spring snails), as required by the Forest Service technical specialists, which describe the overall health of the system.

2. Develop and implement in consultation with and approved by Forest Service technical specialists and their consultants a riparian vegetation and surface water monitoring plan addressing springs and other surface water courses in the canyon selected for the storage portion of the Pumped Storage Project and their associated riparian areas. Baseline data prior to initiation of the project shall be obtained for both water quantity and quality because project activities could alter groundwater levels and quality, with subsequent alteration of surface water dynamics. The surface water monitoring should include intermittent as well as any perennial systems, and should be done no less frequently than monthly. Surface water monitoring stations shall be established at locations (e.g., at bedrock outcroppings) that would be unlikely to become unusable due to sedimentation or erosion. Riparian vegetation monitoring shall include quantifying extent of riparian vegetation associated with springs, streams, and other riparian areas. The monitoring plan shall be in effect upon approval for pre-construction so that baseline data can be established and shall continue for the entire duration of the project while in construction, and for the post construction period as long as project related impacts to groundwater and/or surface waters are anticipated by the Forest Service technical specialists and their consultants.

Condition No. 36— Groundwater Management Plan

Within one year of license issuance the Licensee shall file with the Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources. At a minimum, the Groundwater Management Plan shall:

1. Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater exploration and aquifer characterization plan which includes the use of existing data as well as installation of additional exploration boreholes and monitoring wells, aquifer testing (which includes water quality) and geophysics as deemed necessary to determine baseline data, construction monitoring data and post construction monitoring data for the area potentially impacted by the project.

2. Groundwater inflow criteria for tunneling will be established by the Forest Service in consultation with the co-applicants. Inflow criteria will be approved by the forest service prior to construction.

3. Develop and implement, in consultation with and approved by the Forest Service, a plan to monitor and control groundwater levels and tunnel inflows for the duration of the construction of the penstocks and tunnels and for a minimum of 10 years post construction unless it can be determined that construction related impacts no longer exist. This plan may include, but is not limited to, the development and use of a groundwater model as well as the installation and use of in-tunnel piezometers, monitoring wells, and seepage collars (or other means to control longitudinal flows along the tunnel).

4. Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater testing and monitoring program for the lined reservoir which will detect seepage from the reservoir into the groundwater and riparian areas. This monitoring program will remain in place for the life of the permit project.
5. Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater testing and monitoring program for the tunnel (unless a final impervious liner is installed prior to commissioning) which will detect seepage from the tunnel liner into the groundwater and riparian areas. This monitoring program will remain in place for the life of the permit project.

Condition No. 37 – Scenery Conservation Plan

Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of the Plan is to identify actions that will minimize the project's visible disturbance to the naturally established landscape. Implementation of the Plan will achieve the greatest degree of compatibility possible with the Cleveland National Forest Land and Resource Management Plan Scenic Integrity Objectives.

In order to achieve the greatest consistency with the "High" Scenic Integrity Objective (natural appearing conditions), the project shall integrate the following design recommendations into the Scenery Conservation Plan:

- **Powerline** - Transmission lines shall be nonspecular (nonreflective) and dark as possible. The towers shall be custom-colored with a flat, nonreflective finish, to visually blend with the native vegetation colors and be as visually transparent as possible within the natural landscape pattern. Towers shall be designed to minimize their visual prominence and contrast to the natural landscape. Vegetation and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the visual impact of vegetation clearing.
- **Reservoir** – The upper storage reservoir shall be surrounded by a berm with irregular form and profile to reflect the local topography, which shall also be revegetated with adjacent native species. Screen views into the reservoir that may otherwise be visible along the adjacent sensitive roadways (South Main Divide and Ortega Highway), recreation areas, trails and wilderness. Security fencing shall be colored to blend with the planted/restored native vegetation.
- **Roads** - New temporary roads (maximum 15% ground slope) or roads needing reconstruction/expansion shall be configured to minimize the creation of cut/fill slopes, and where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species.
- **Penstock Pipes** – Penstocks shall be located in underground tunnels and any associated ground disturbance shall be reshaped to natural appearing contours and revegetated with native species.

- **Structures** – All structures and structural elements, that may be constructed as part of the Project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast, blend, and complement the adjacent forest and community architectural character.

The Licensee may be required to provide photorealistic visual simulations of proposed designs and mitigation measures to demonstrate their effectiveness in achieving Land and Resource Management Plan Scenic Integrity Objectives for the Elsinore Place as viewed from sensitive viewsheds. Where project features create unavoidable scenery effects that are inconsistent with those Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas to offset the direct effects of those project features.

Condition No. 38 -- Habitat Mitigation Plan

Within 1 year from license issuance or prior to any ground disturbing activities, and before starting any activities the Forest Service determines to be of a land-disturbing nature on or affecting National Forest System land, the Licensee shall file with the Commission a Habitat Mitigation Plan approved by the Forest Service. This plan must identify requirements for construction and mitigation measures to meet Forest Service habitat objectives and standards. Where project features create unavoidable effects that are inconsistent with Cleveland National Forest Land and Resource Management Plan Habitat Objectives, additional enhancement activities shall be performed to offset the direct effects of project construction.

The enhancements would be most appropriately located within the project area, but if opportunities are not fully available there, then alternatively and in order of priority, to be located elsewhere within the Elsinore "Place", the Trabuco Ranger District, or the Cleveland NF. The plan also must include dates for accomplishing these objectives and standards and must identify needs for and timing of any additional studies necessary. The plan must consist of the following minimum mitigation ratios for permanent loss of habitat:

1:1 for habitats that are sensitive or support listed species
1:1 for coastal sage scrub
1:1 ratio for riparian oak woodland

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COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Appendix D
Visual Simulations
Pages D-1 to D-22
FEIS

APPENDIX D

Visual Simulations

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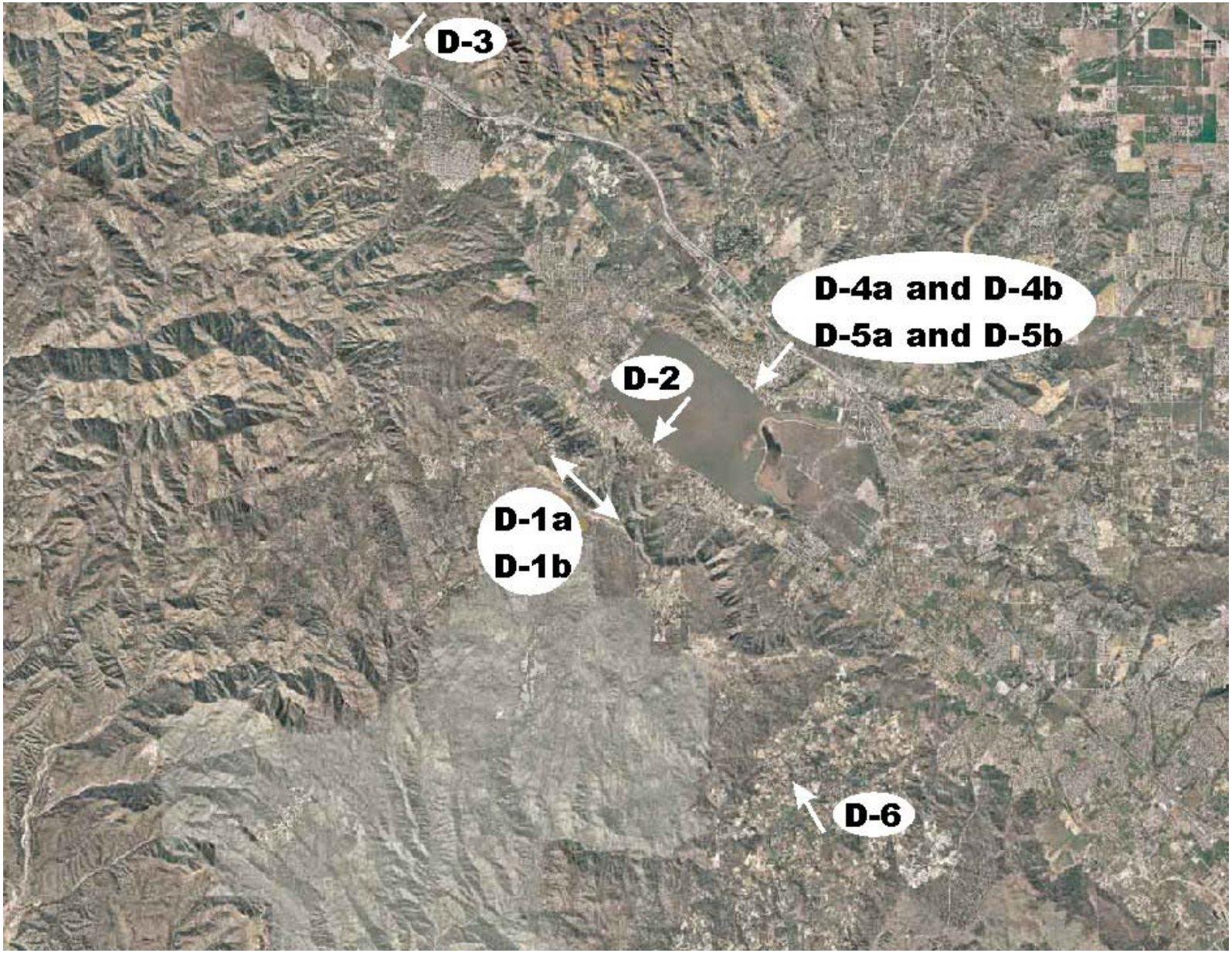

Location of viewpoints for photo simulations D.1-a through D.6

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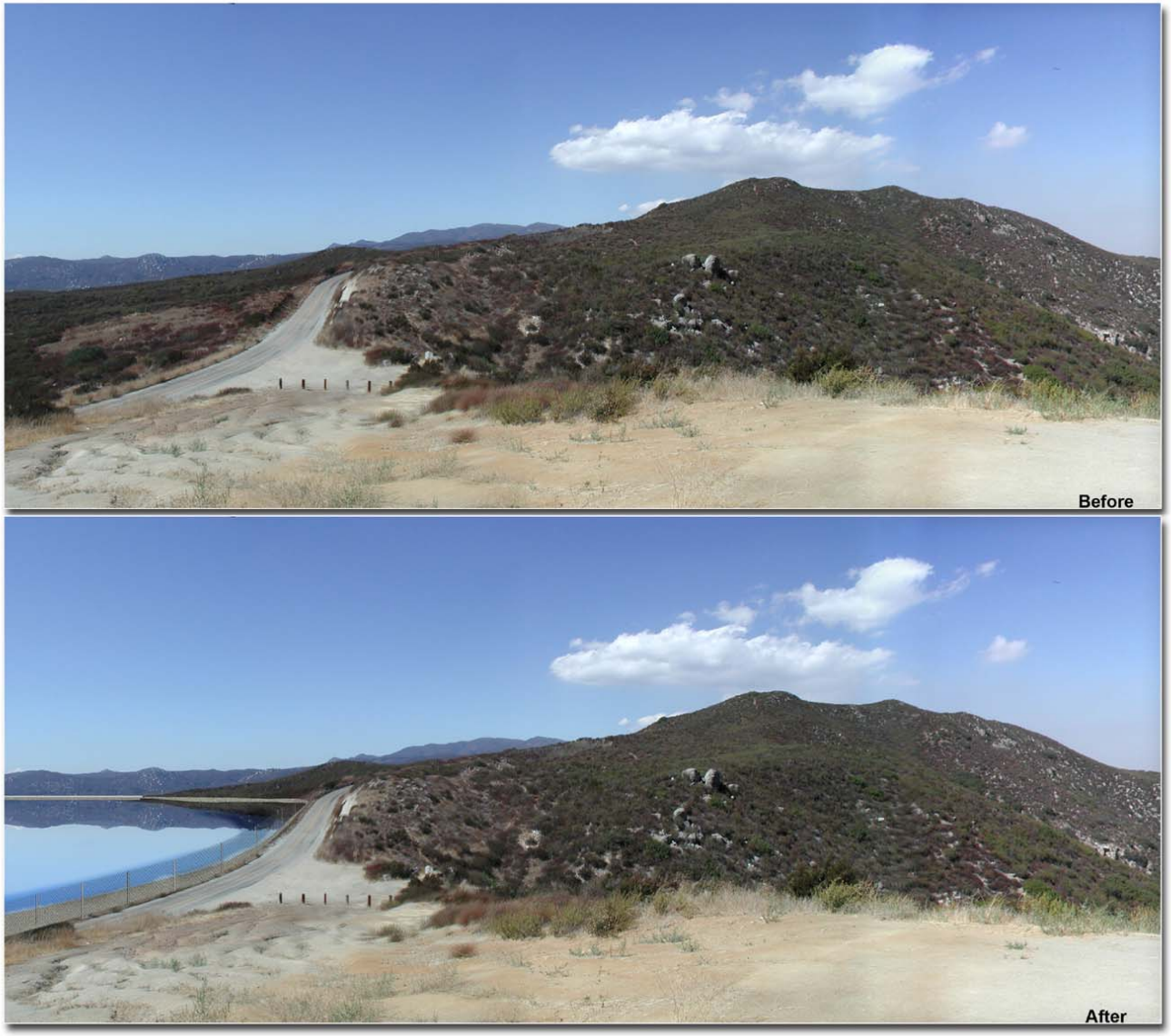

D.1-a–Decker Canyon upper reservoir site looking north along South Main Divide Road, Before and After

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D.1-b–Decker Canyon upper reservoir site looking south along South Main Divide Road, Before and After

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D.2–Santa Rosa Powerhouse Site looking west from Grand Avenue, Before and After

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D.3–Northern sub-station looking west from I-15, Before and After

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D.4-a–Co-Applicants proposed transmission alignment, northern segment, looking west from Lake Elsinore boat ramp, Before and After

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D.4-b–Co-Applicants proposed transmission alignment, southern segment, looking west from Lake Elsinore boat ramp, Before and After

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D.5-a–Staff alternative transmission alignment, northern segment, looking west from Lake Elsinore boat ramp, Before and After

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D.5-b–Staff alternative transmission alignment, southern segment, looking west from Lake Elsinore boat ramp, Before and After

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D.6-a–Co-Applicants proposed transmission alignment, southern segment, looking west from La Cresta, Before and After

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D.6-b–Staff alternative transmission alignment, southern segment, looking west from La Cresta, Before and After

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COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Appendix E
Comments on the Draft Environmental Impact Statement and the October 3, 2006, Public Notice for the Lake Elsinore Advanced Pumped Storage Project, Project No. 11858-00
Pages E-1 to E-92
FEIS

APPENDIX E

Comments on the Draft Environmental Impact Statement
and the
October 3, 2006, Public Notice
for the
Lake Elsinore Advanced Pumped Storage Project
Project no. 11858-002

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APPENDIX E

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE LAKE ELSINORE ADVANCED PUMPED STORAGE PROJECT PROJECT NO. 11858-002

The Federal Energy Regulatory Commission (Commission or FERC) issued its draft environmental impact statement (EIS) for the licensing of the Lake Elsinore Advanced Pumped Storage Project (LEAPS Project) on February 17, 2006. The Commission requested comments be filed by April 25, 2006. In addition, the Commission conducted two public meetings on April 4 and 5 in the cities of San Juan Capistrano and Lake Elsinore. In this appendix, we summarize the written comments received; provide responses to those comments; and indicate, where appropriate, how we have modified the text in the final EIS. We grouped the comment summaries and responses by topic for convenience. The following entities filed comments on the draft EIS:

Commenting Entity	Filing Date
Elsinore Hang Gliding Association	March 6, 2006
Robert V. Wills	March 13, 2006
Michael Wayne Smith	March 23, 2006
Bill Soderquist, Elsinore Hang Gliding Association	March 25, 2006
Jeeni Criscenzo	April 4, 2006
Nick Bimbo et al. (letter filed by 13 individuals)	April 5, 2006
Elsinore Valley Municipal Water District	April 6, 2006
Palomar Observatory	April 7, 2006
Elsinore Hang Gliding Association	April 11, 2006
Endangered Habitat League	April 12, 2006
Jay Scott et al. (letter filed by 33 individuals)	April 17, 2006
John and Soma Stickler	April 17, 2006
LaCresta Property Owners Association	April 19, 2006
John Pecora	April 19, 2006
County of Riverside	April 20, 2006
Michael Hilberath et al. (letter filed by five individuals)	April 20, 2006
Peter Dawson	April 21, 2006
U.S. Department of the Interior	April 21, 2006
Deanna and Charles Whitney	April 22, 2006
David Anderson	April 24, 2006
Elsinore Testing of Experimental Aircraft Mechanisms, Inc. (Francis Hoffman)	April 24, 2006
Friends of the Forest (Trabuco District)	April 24, 2006
Douglas Pinnow	April 24, 2006

Commenting Entity	Filing Date
California Regional Water Quality Control Board, Santa Ana	April 25, 2006
California Department of Fish and Game	April 25, 2006
Center for Biological Diversity, Sierra Club	April 25, 2006
City of Lake Elsinore	April 25, 2006
Elsinore Valley Municipal Water District (two letters)	April 25, 2006
Fernandez Parties[a]	April 25, 2006
Chris Hyland	April 25, 2006
Robert and Susan Konoske	April 25, 2006
Jerry Mosier	April 25, 2006
Lake Elsinore United School District	April 25, 2006
Natural Resources Defense Council	April 25, 2006
Pacific Clay Industries	April 25, 2006
Rancho Capistrano Property Owners Association	April 25, 2006
Linda Lou and Martin Ridenour	April 25, 2006
State Water Resources Control Board	April 25, 2006
California Native Plant Society (Orange County Chapter)	April 26, 2006
Jon Johnson	April 26, 2006
Andrew and Sandra Mauthe	April 26, 2006
San Diego Gas & Electric Company	April 26, 2006
Edith Stafford	April 26, 2006
Edwin Thorell	April 26, 2006
David Voss	April 26, 2006
Scott Werner	April 26, 2006
Ruth Atkins	April 27, 2006
Bruce Campbell	April 27, 2006
Lake Elsinore Sailing Club	April 27, 2006
Lakeland Village/Wildomar Redevelopment Project Area Committee	April 27, 2006
Anna Lee	April 27, 2006
Pechanga Band of Luiseno Indians	April 27, 2006
U.S. Environmental Protection Agency	April 27, 2006
U.S. Marine Corps (Camp Pendleton)	April 27, 2006
County of Orange	May 1, 2006
Luis Stahl	May 1, 2006
Honorable Darrell Issa , Honorable Ken Calvert, Honorable Mary Bono, Honorable Duncan Hunter	May 2, 2006
Charles Jancic	May 3, 2006

Commenting Entity	Filing Date
US Army Corps of Engineers, Los Angeles District	May 8, 2006
Elsinore Valley Municipal Water District	May 31, 2006

[a] Miller, Staff, & Regalia filed on behalf of Friesian Focus, LLC, the Fernandez Trust, and Joseph and Joan Fernandez (collectively "Fernandez Parties").

In addition to the above-listed filings, 95 individuals from the project area filed letters in opposition to the proposed project citing general concerns. These individuals are listed at the end of Appendix E. Also, organizations and individuals filed several letters echoing the same themes. We summarize these letters as follows:

(1) On April 25, 2006, the Commission received 1,905 letters from individuals across the country outside of the project area requesting that the Commission adopt the No-action Alternative. These individuals oppose the potential destruction of wilderness-quality and oak trees in Morrell Canyon, the potential effects on world class hang gliding opportunities, and the potential effects on nesting shorebirds in one of Riverside County's most important wildlife reserves.

(2) The San Diego Chapter of the Sierra Club filed 151 postcards from residents of San Diego County on April 25, 2006, and the Los Angeles Chapter of the Sierra Club filed 430 comment cards (signed by 430 individuals) on April 27, 2006, saying that we need to preserve both Decker and Morrell canyons in the Santa Ana mountains and stop the proposed pumped storage project from destroying a prized recreational area and drowning the rare southern oak forest.

(3) By letters filed on April 26 and 28, 2006, 200 individuals from the project area oppose the proposed project citing concerns about risks to the environment, property, and people. Specifically they state that the project would violate the Cleveland National Forest Land Management Plan and would harm the San Mateo Wilderness Area, create a risk of flooding, complicate fire fighting, encourage off-road vehicle trespass, and put hang gliders at risk. They also question the need for the project, the competence of the co-applicants, and the adequacy of the environmental studies completed in support of the project. They urge adoption of the No-action Alternative for a project anywhere in the Cleveland National Forest. These individuals are listed at the end of Appendix E.

These general letters provide comments similar to those comments provided in the letters listed above. We address all the issues, as appropriate, in the final EIS. Comments regarding purely editorial issues are addressed in the final EIS and are not summarized below.

GENERAL

Comment 1: Ninety-five regional residents filed letters with general comments about consideration of alternative energy sources and the potential effects of the proposed project on the environmental and recreational resources of Decker and Morrell canyons, including the disturbance of natural springs, removal of California live oak trees, interruption of use of hiking trails and hang glider launch sites, and interference with fire fighting activities; changes in the water quality and recreational boating use on Lake Elsinore; on the property values, and aesthetics qualities. These regional residents encourage the Commission to take no action.

Response: We appreciate the general comments put forth by regional residents and have addressed them, as appropriate, throughout the final EIS.

Comment 2: David Voss, Charles and Deanna Whitney, and other individuals question how the Commission could issue a license to an entity that has had no prior experience in the construction and operation of a pumped storage facility and transmission line.

Response: Under the Federal Power Act (FPA), any citizen, municipality, corporation, or Indian tribe can apply for a hydropower license. The Commission will consider whether the Nevada Hydro Company (Nevada Hydro) and the Elsinore Valley Municipal Water District (Elsinore Valley MWD), as co-applicants, can comply with the terms of a license and safely manage and operate the project to provide efficient and reliable service in any order issued for this project.

PURPOSE AND NEED

Comment 3: Jenni Criscenzo states that the conclusions of the draft EIS are in direct conflict with the goals of the San Diego Association of Governments as published in May 2003 in *Energy in 2030: The San Diego Regional Energy Strategy*. She also states that as an energy consumer, the LEAPS Project is in conflict with the State law (SB 1037) that requires all utilities to meet their unmet resource needs first with energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible. She points out that Southern California Edison (SCE) and San Diego Gas & Electric Company (SDG&E) might not actually be permitted to purchase power generated by LEAPS after meeting all of their legal and regulatory requirements.

Response: If the Commission decides to grant a license to the project, it is the responsibility of the co-applicants to then secure a power purchase agreement.

Comment 4: The Friends of the Forest question how the Commission can accept a license application that includes a transmission line that the Commission does not have the authority to grant.

Response: The Commission has authority to license a transmission line from a waterpower project to the "point of junction" with the interconnected primary transmission system, in this case the SDG&E and the SCE systems. Appendix B-7 provides further explanation of this project's point of junction. We have deleted paragraph 1.2.3.3 on page B-8 from the final EIS as the Talega-Escondido/Valley Serrano 500 kilovolt (kV) Interconnect Project (TE/VS Interconnect) transmission line is not being proposed as a separately permitted transmission line.

Comment 5: Pacific Clay and the Center for Biological Diversity state that the statement of Purpose and Need in the draft EIS is inadequate because it does not provide a meaningful discussion of why the project is the best comprehensive plan for improving and developing Lake Elsinore; whether the project forwards the purposes of energy conservation, the protection of fish and wildlife, and promotion of recreation; and whether there are feasible alternative energy sources or other feasible project locations. They state that there is no discussion of the likelihood of a transmission line only portion of the project going forward without the hydropower portion.

Response: Section 1.2.1 of the draft EIS describes the current and future demand for electricity in the California-Mexico Power area of the Western Electricity Coordinating Council (WECC) and the specific role that a pumped storage project could play in helping to meet the future energy demand. The draft EIS is intended to disclose the potential effects of the proposed project on the environmental resources of the projects. The draft EIS provides an analysis of the effects of each project component, including the transmission line, as summarized in table 53. Decisions about whether or not to license the proposed LEAPS Project or the TE/VS Interconnect will be addressed in any license order issued by the Commission and in any Record of Decision issued by the USFS.

Comment 6: The Friends of the Forest state that there is no market for large-scale pumped storage projects, citing four examples of projects licensed by the Commission between 1991 and 1997 for which the Commission terminated the licenses because construction had not begun. They request that the final

EIS include information about pumped storage projects licensed by the Commission during the past 20 years.

Response: Whether pumped storage projects licensed by the Commission during the past 20 years have been built or terminated is not relevant to current proceeding. An applicant may apply for a license for a pumped storage project and the Commission must consider any application on a case-by-case basis that meets the regulatory requirements.

Comment 7: The Friends of the Forest and Charles and Deanna Whitney point out that SDG&E has eliminated the LEAPS Project transmission alignment as a preferred route in the Southwest Transmission Expansion Plan (STEP) process, finding it not suitable from a construction and maintenance point of view; that the Los Angeles Department of Water and Power and Imperial District have announced the Green Path Project; and that a new 775-megawatt (MW) combined power plant is under construction less than a mile from the Valley substation. They conclude that Nevada Hydro has overstated its case relative to the need for power.

Response: The proposed transmission line is currently a primary line associated with the proposed advanced pumped storage facility. The draft EIS states that the WECC anticipates that 6,783 MW of new capacity would come on line in the next 10 years, including the combined power plant under construction near the Valley substation. About 390 MW of hydroelectric pumped storage, not including the LEAPS Project, is included in this forecast. Of interest is not the amount of new capacity, but the type of capacity that would be provided by pumped storage. Pumped storage generates and stores power during off-peak periods that can be provided rapidly during on-peak periods when supplies of energy are tight.

Comment 8: The State Water Resources Control Board (State Water Board) states that the final EIS should compare the estimated consumer energy costs of the project with the estimated consumer energy costs resulting from the development of a 500-MW gas-powered combined cycle facility with peaking abilities in the South Coast Region. It states that this comparison should include a discussion of the relative project footprints and the cost and feasibility of mitigation for each.

Response: Our developmental analysis considers the No-action Alternative to include a 500-MW gas-powered simple cycle turbine. We refer to "Comparative cost of California central station electricity generation technologies" (CEC, 2003) as the basis for making this selection. The document describes simple-cycle turbines as operating in a peaking mode, which staff concludes is a reasonable basis for comparison to pumped storage projects. The document estimates that 50 acres would be required for a 100-MW simple-cycle combustion turbine plant. A 500-MW plant would likely require less than 250 acres due to economies of scale. Such a plant would require emissions controls and various environmental permits.

Comment 9: The State Water Board states that staff should take note of the recent agreement of seven utilities to underwrite the economic and environmental studies for a transmission line that would bring electricity to California from out-of-state generation sources, known as the "Frontier Line." The cost and need for the TE/VS Interconnect Project should be considered in light of the "Frontier Line" Project and its place in the STEP.

Response: We note that the transmission system expansion alternatives proposed under the "Frontier Line" Project would partially address energy transmission needs in the Western states. However, the project's feasibility study and conceptual plan were only recently announced (April 2006) and will take approximately 12 months to complete. Therefore it is premature to consider it in the final EIS.

Comment 10: Bill Soderquist, on behalf of the Elsinore Hang Gliding Association, presented a list of new power projects that have gone online or are due to go online since the project was proposed. He states these projects are adequate to supply the new demand.

Response: We appreciate the research by Mr. Soderquist into new power projects serving the California area. Our basis for the Need for Power section of the draft EIS is the *10-Year Coordinated Plan Summary: Planning and Operation for Electric System Reliability* (WECC, 2005). We note that table 30 on page 49 of this document provides information similar to the information provided by Mr. Soderquist and that project generation additions and retirements are included in the WECC analysis. We continue to rely on the WECC assessment that says by 2014, California will have to add 6,783 MW of new capacity of which pumped storage could be a part.

Comment 11: The Army Corps of Engineers (Corps) recommends adding to the final EIS an explicit explanation of why a 500-MW capacity facility is needed, as opposed to a lesser amount of capacity.

Response: We previously requested clarification on the selection of the proposed installed capacity from the co-applicants. The co-applicants responded in Clarification (4) (c) to their November 12, 2004, deficiency letter response that the 500-MW facility optimizes the site and available equipment configurations, doing so in an economical manner**.** We note that for pumped storage the amount of capacity installed is highly sensitive to the power purchasers' load shape, and the co-applicants have not indicated who would purchase the energy generated by the project.

Comment 12: Edwin Thorell states that power production can be better produced by using "peakers" powered from methane produced by Elsinore Valley MWD's plant. He also states that solar power and wind power are better investments than the proposed project.

Response: As noted in the draft EIS, forecasts of new capacity do not treat wind power as firm capacity because of the intermittent nature of wind. Although other sources of energy may evolve, the co-applicants propose a pumped storage facility and our need for power addresses the role of pumped storage in the energy resource mix for the region.

Comment 13: The Natural Resources Defense Council states that the project's use of nuclear power and its associated environmental effects must be examined under the National Environmental Policy Act (NEPA).

Response: The co-applicants have not indicated that they have generation contracts with nuclear power providers at this time and, in any event, the environmental effects associated with nuclear power would have been disclosed in the NEPA analysis associated with the Nuclear Regulatory Commission's proceeding.

PROCEDURAL

Comment 14: Nevada Hydro requests that the *Cover Sheet* and *Abstract* be revised to state that the project transmission lines are located in Orange and San Diego counties. It also requests that figure 1 show the locations of the pumped storage facility as well as the proposed transmission alignment.

Response: We have revised the *Cover Sheet* and *Abstract* to include all the counties within which the proposed project is located. We have revised figure 1 to expand the project location box to include the transmission component of the proposed project.

Comment 15: Nevada Hydro requests that the *Purpose of Action* discussion on page 1-1 of the draft EIS be revised to say that the Commission and the USFS have agreed to participate as cooperating agencies in the preparation of an EIS for the LEAPS Project and for the TE/VS Interconnect Project so that the EIS can by used by the Commission, the USFS, and other agencies as the environmental basis for any and all actions that may be required from those federal agencies from whom discretionary actions are required.

Response: The Commission invited the USFS to participate as cooperating agency for the preparation of an EIS for licensing of the LEAPS Project. The LEAPS Project, as proposed by the co-applicants, includes an upper and lower reservoir, water conduits, a powerhouse, tailrace channel, an intake/outlet structure, and 30 miles of transmission lines. The co-applicants also filed a separate special use permit application with the USFS for permission to occupy Cleveland National Forest lands to construct and operate the stand alone TE/VS Interconnect Project. The jointly prepared EIS will provide the environmental disclosures necessary for the Commission to make a decision on whether to issue a hydropower license and, if it so chooses, for the USFS to make a decision on whether to issue a special use permit to allow the LEAPS Project to occupy Cleveland National Forest lands. The Commission is not cooperating with the USFS on any decision related to the transmission alone project.

Comment 16: The Friends of the Forest point out that it filed a motion to intervene on June 2, 2004, but was not listed as an intervener on page 7 of the draft EIS.

Response: We have corrected this oversight and have listed Friends of the Forest in the list of interveners in the final EIS.

Comment 17: The Friends of the Forest question why the Commission chose not to use the Docket ER06-278 service list to notify parties in the P-11858 proceeding that ER06-278 had been opened for comments and interventions. They request that the record of ER06-278 be made part of the record in the P-11858 proceeding.

Response: These are two separate Commission proceedings with separate dockets and service lists.

Comment 18: Many individuals state that they did not receive any written notice that their property was in the path of the transmission alignment and question whether proper notification procedures have been followed.

Response: The co-applicants followed the Commission's notification requirements under 18 CFR § 4.32(a)(3)(i)(A). The Commission issued a public notice on October 3, 2006, to all owners of record to ensure that every owner who could be directly affected by the proposed and alternative transmission alignments (presented in the final EIS) received notification and had an opportunity to comment on the proposed and alternative actions prior to issuance of the final EIS.

Comment 19: Riverside County recommends that an additional public hearing be held in the local area because many people were forced to stand outside and were unable to hear the proceedings at the only Commission-conducted public hearing previously held.

Response: As noted by others in attendance, the alternative sites for the public meeting were no larger than the neutral site selected for the meeting. We note that everyone who wished to speak at the public meetings held on April 4 and 5, 2006, was able to do so and everyone who wished to file written comments could do so. Transcripts from the scoping meetings and the public meetings on the draft EIS are available on eLibrary through the Commission's web site.

Comment 20: Riverside County requests that it be notified of any and all additional hearings and be provided future reports prepared for this project so that it has the opportunity to review and coordinate regarding project-related effects on Riverside County activities.

Response: Riverside County filed a motion to intervene and as such will receive all Commission issuance and other filings in this proceeding.

Comment 21: The Fernandez Parties state that the Commission does not have authority over the Interconnect Project, and therefore that portion of the project needs to be redirected to the California Public Utilities Commission.

Response: The co-applicants propose a pumped storage project with a primary transmission line to convey the energy produced to the grid. Until an interconnection with the grid is achieved, the primary line is clearly within the Commission's authority to license.

PROPOSED ACTION AND ALTERNATIVES

Comment 22: SDG&E states that the final EIS should evaluate the statement in section 2.2 of the draft EIS: "Pumped storage does not depend on fossil fuels and is not subject to supply disruptions" to determine the fuel source for unit at margin during off-peak pumping periods since the project is a net consumer of energy. The Center for Biological Diversity also expresses this concern.

Response: The co-applicants have stated their intent to pursue off-peak generating sources, such as geothermal, wind, and other non-fossil based energy sources. We recognize that until they negotiate a power sales agreement, the final off-peak fuel mix would not be fully defined. We have therefore modified the statement referenced accordingly. We note that as long as there is water in the upper reservoir, it can be dispatched for power; however, once empty, the project is dependent on electricity for refill.

Comment 23: Nevada Hydro suggested several modifications to the proposed project including: (1) using a single high pressure conduit rather than two parallel high pressure conduits from the upper reservoir to the powerhouse; (2) changing the proposed generator voltage from 13.8 kV to 16 kV and changing oil-filled cables to gas-insulated cables; and (3) accelerating the construction schedule from 4.5 to 3 years. Nevada Hydro also revised its proposed transmission alignment: (1) to relocate the southern substation from the Tenaja area to an area south of the existing Case Springs Fire Station within the existing SDG&E right-of-way; (2) to include underground segments near the hang gliding launch areas and between the upper reservoir and the powerhouse; (3) and to provide preliminary tower sites along the revised proposed alignment.

Response: In subsequent clarification communication with Commission staff (personal communication, D. Kates, Nevada Hydro, Vista California, and James Fargo, Commission, Washington, DC, on May 26, 2006), Nevada Hydro indicated that the co-applicants were not formally modifying their proposed action to include changes to the high pressure conduit design or to accelerate the construction schedule. Therefore, we present only the co-applicants' revised transmission alignment and analyze the effects of this proposed alignment along with the preliminary tower placements in the final EIS.

Comment 24: Nevada Hydro requests that several measures proposed by the co-applicants in the license application and subsequent filings be deleted, modified, or clarified as follows:

(1) Nevada Hydro no longer proposes to develop and implement a revised lake operating plan for Lake Elsinore, addressing increased minimum lake levels, flood control implications, and water

supply issues; instead, Nevada Hydro proposes to work cooperatively with the agencies in authority (pages 2-13 and 5-11 of the draft EIS).

(2) Nevada Hydro requests the deletion from the EIS the measure to reduce the maximum operational drawdown during summer months following a winter with below-normal precipitation to control algal blooms that could result in fish kills (pages 2-14 and 5-12 of the draft EIS) because the co-applicants no longer propose this measure.

(3) Nevada Hydro requests that the proposed measure to acquire and demolish the multi-family residences nearest the proposed powerhouse site to address potential adverse effects on residents during construction (pages 2-15 and 5-13) be clarified to state that it pertains to the Santa Rosa site and be modified to allow the co-applicants to use these properties to provide relocation assistance or for construction purposes, and to return these properties to the regional housing inventory or other productive uses, following completion of construction.

(4) Nevada Hydro states that it is currently the co-applicants' objective to achieve a balance of excavation and fill materials (pages 2-15 and 5-13 of the draft EIS) but requests that this objective be a target rather than an absolute requirement because it may be difficult to achieve for the construction of the transmission line.

(5) Nevada Hydro states that it agrees to provide a fair-share contribution toward the installation of a traffic signal at the Grand Avenue/Ortega intersection but requests that the appropriate state or local agency establish the need for the signal, develop plans and cost estimates, identify the proportion of costs associated with the proportion of project-related traffic use and that the co-applicants contribute funding rather than be responsible for implementation of the improvement.

(6) Finally, Nevada Hydro asks that the proposed measure to conduct all construction activities in accordance with the noise element of the county of Riverside Comprehensive General Plan and city of Lake Elsinore construction noise standards be revised to allow the co-applicants to conduct 24-hour construction operations subject to further noise studies demonstrating that, as proposed or modified, no sensitive receptors would be exposed to noise that exceeds the locally established standards.

Response: We removed the proposed measure to prepare a revised lake operating plan for Lake Elsinore from the co-applicants' proposed measures in section 2.3.6 and have added this measure to the staff alternative in section 2.4.3.2. We have deleted the proposed measure to reduce the maximum operational drawdown during summer months following a winter with below-normal precipitation. We concluded in the draft EIS that this measure is not necessary because the lake level would be maintained at or above 1,240 feet mean sea level (msl). We have revised the text in section 2.3.6 and 5.1.1 to indicate that housing acquired within the construction right of way could be returned to the regional housing market upon completion of construction. The staff-recommended measure only pertains to achieving a balance of excavation and fill materials at the upper reservoir. We would expect that the specifics for participating in the installation of any traffic signal would be addressed in the co-applicants' proposed road and traffic management plan. In their comments on the draft EIS filed on April 25, 2006, the co-applicants suggested and then withdrew their suggestion during a clarifying phone call with Commission staff on May 26, 2006, to accelerate the construction schedule, eliminating any need for studies to demonstrate that 24-hour construction would not violate local ordinances.

Comment 25: Linda and Martin Ridenour comment that the figures 2 and 3 in the draft EIS do not show the many homes, apartments, and schools that would be affected by the proposed project, the individual lakeside properties that would be affected, or the exact location of the inlet/outlet structure. They also comment that figures 5 and 6 do not include enough detail and suggest that the final EIS include a satellite map showing the location of houses near the transmission lines so that people can comment on the effect on their properties.

Response: Figures 2 and 5 show the approximate location of the inlet/outlet structure in Lake Elsinore. Appendix F of the final EIS includes aerial photographs that show the co-applicants' proposed and staff alternative transmission alignments. These aerial photographs also were sent to property owners of record within 0.25 mile of the co-applicants' proposed and staff alternative transmission alignments.

Comment 26: Nevada Hydro points out that some language in the draft EIS (e.g., page 3-136) is inconsistent with the co-applicants' proposal and with USFS preliminary 4(e) condition no. 28 that would provide a day-use area at either the upper reservoir construction staging and laydown area or elsewhere.

Response: USFS revised preliminary 4(e) condition no. 27 adopts the co-applicants' alternative 4(e) language and now allows for an alternative location for the day-use area. We have revised the final EIS to eliminate the inconsistent language in the terrestrial resources analysis.

Comment 27: Linda and Martin Ridenour provide comments on the USFS 4(e) conditions citing the need for detailed plans in order to evaluate effects. They comment that a special use permit should not be granted without more detailed information about vegetative fuel management, road and traffic management, recreational facilities (how will the USFS specified facility relate to the county trail system?), protection of historic properties, and protection of wildlife (information on the Pacific flyway).

Response: Site-specific analysis would be required before issuance of a special use authorization. A vegetation fuel treatment plan (condition no. 9), a vegetation and invasive weed management plan (condition no. 33), road and traffic management plan (condition no. 26), recreation facilities and administration plan (condition no. 27), historic properties management plan (condition no. 28), and a wildlife management plan (condition no. 34) would be required prior to construction and within 1 year of any license issued. The only system trail that may be affected is the Morgan Trail, which has been analyzed within the draft EIS (section 3.3.6.2).

Comment 28: Nevada Hydro states that, as described in section 2.3.4 of the draft EIS, the staff alternative transmission alignment would be a circuitous rather than a linear configuration that would require additional tower fortifications and additional temporary or permanent access roads. Nevada Hydro also suggests that figures 5 and 6 show a corridor rather than a specific transmission alignment.

Response: Commission and USFS staff modified the staff alternative transmission alignment to provide a more linear configuration and to minimize effects on the wilderness area and back-country non-motorized areas within the Cleveland National Forest. The figures included in volume 1 of the license application identified the primary transmission line as a transmission alignment and we describe the proposed route as an alignment in the EIS to be consistent. We consider the alignment to represent a 500-foot-wide corridor with a 200-foot-wide permanent right-of-way.

Comment 29: Nevada Hydro assumes that the staff-recommended measure for a plan to determine the toxicity of sediments in the lakebed relates only to the lake area that would be directly impacted by construction activity and only to the identification of toxins above actionable levels and does not encompass the entire lake or extend beyond areas of direct disturbance. Nevada Hydro requests that the measure be clarified to reflect these assumptions.

Response: Your assumptions are correct, and we have revised section 2.4.3.2 in the final EIS to clarify the scope of the recommended plan.

Comment 30: Nevada Hydro provides updated information on the housing development at Ortega Oaks and states that subdivision approvals in April 2004 and unknown to the co-applicants would increase both

the cost and the complexity of constructing the powerhouse at the Ortega Oaks site substantially. Nevada Hydro states that if the license is restricted to the Ortega Oaks site, there would remain an unresolved question concerning whether the co-applicants could feasibly and reasonably secure the Ortega Oaks site. Nevada Hydro also points out that its study reports show that of the three powerhouse sites, the Ortega Oaks site possesses the least desirable subsurface conditions, (i.e., the site offers greater geotechnical challenges and design-level obstacles). Nevada Hydro requests that both the Commission license and the USFS permit authorize use of either the Santa Rosa or Evergreen powerhouse sites in the event that the Ortega Oaks property cannot be feasibly or reasonably acquired.

Response: We have reviewed your filing including the information about the permitted housing development at the Ortega Oaks powerhouse location. Based on this new information and on other considerations, the staff alternative now includes the Santa Rosa powerhouse location.

Comment 31: Nevada Hydro states that the Decker Canyon upper reservoir site offers the most direct (and least expensive) connection to the Ortega Oaks powerhouse site. If that site is not feasibly acquired, the Decker Canyon upper reservoir site would not offer the most direct (and least expensive) connection to either the Santa Rosa or Evergreen powerhouse sites. It states that as the distance between the upper reservoir and powerhouse increases, so does the penstock tunnel length between these two facilities. Because tunneling costs represent one of the greatest construction line-item costs, it is important to maintain relative proximity between the powerhouse and upper reservoir. Nevada Hydro provides a wetland delineation report in the April 15, 2006, filing (attachment F) that states "While some minor differences in the overall species composition and structure of the drainage features exist, their functions are considered similar." Nevada Hydro states that given the findings of the wetland delineations, the avoidance of jurisdictional waters, in and of itself, does not provide a supportable basis for the selection of one upper reservoir site over the other. Further, because Decker Canyon contains 0.3 acre of waters of the United States, it does not meet the definition of a practicable alternative pursuant to 40 CFR 230.10.

Response: We have reviewed the new information on wetlands provided in attachment F to your comments on the draft EIS. The potential effect on wetlands is only one of several issues we considered in determining the effects of the construction and operation of the upper reservoir at the Decker Canyon and Morrell Canyon locations. We continue to conclude that construction of the upper reservoir at Morrell Canyon would have greater effects on Lion Spring, oak woodlands, and recreational use of trails and hang gliding launch sites.

Comment 32: Nevada Hydro states that if the Ortega Oaks powerhouse site cannot be acquired, the staff alternative transmission alignment would need to be modified to facilitate connection to either the Santa Rosa or Evergreen powerhouse sites. With the exception of the northernmost segment, Nevada Hydro does not have any objection to the staff alternative transmission alignment. However, it continues to believe that, with the exception of that segment located near the area now used as a principal launching site by hang gliders, the co-applicants originally proposed and now revised transmission alignment would result in lesser impacts on existing homes located near the base of the Elsinore Mountains. With regard to the northernmost segment of the staff alternative transmission alignment, Nevada Hydro points out land use conflicts with Pacific Clay Products and housing developments at Horsethief Canyon and Alberhill Ranch and requests that Commission staff revise the staff alternative transmission alignment to adopt the northernmost segment of the co-applicants' proposed/revised alignment that avoids these land use conflicts.

Response: We have considered all the comments made in response to the draft EIS and have revised the staff alternative transmission alignment. We agree that your alignment to the north of the Cleveland National Forest and to the south along the existing SDG&E route would avoid conflicts with Clay Products and housing developments. The staff alternative transmission alignment as shown in figure 5

and figures F-1 through F-4 in appendix F of the final EIS would follow the same alignment as the co-applicants' proposed alignment at both the northern (north of the Cleveland National Forest) and southern ends. Within the Cleveland National Forest, the staff alternative transmission alignment would still be to the east of your alignment, but generally to the west of the private in-holdings within the forest. We also would place the line underground near the hang gliding launch sites, but for a shorter distance just past the egress to Rancho Capistrano.

Comment 33: Nevada Hydro points out that figures 5, 8, 12, and 15 in the draft EIS show the transmission alignments east of the Cleveland National Forest instead of within the jurisdictional boundary of the forest.

Response: Our intention was for the alignment to be within the Cleveland National Forest. All of the figures in the final EIS have been revised to show the co-applicants' and staff's revised alternative transmission alignments. In addition, aerial photographs showing the proposed and staff alternative transmission lines have been added as appendix F to the final EIS.

Comment 34: The Environmental Protection Agency (EPA) indicates the alternatives analysis for the LEAPS Project needs to be expanded to include alternative sites, alternative technologies, and sustainable approaches that would avoid or minimize effects on waters of the United States while providing peak energy. It recommends that the final EIS include: (1) a clear, concise purpose statement for the project that allows for the analysis of alternatives that avoid waters to the extent practicable; (2) an expansion of the alternatives analysis to consider other alternative sites, technologies, and sustainable approaches within a reasonable market area; and (3) a discussion of appropriate mitigation measures for those effects that are unavoidable.

Response: Our alternatives analysis is adequate. The purpose of the project is to provide an advanced pumped storage facility for the generation of energy during off-peak energy use periods for delivery and use during peak energy use periods. This is clearly stated in the draft EIS. Under the no-action alternative, other forms of generation would be needed to meet future needs during peak energy use periods. We include in the draft EIS alternative locations for the upper reservoir, powerhouse, and transmission lines. We considered two transmission alignments in the draft EIS and, based on public and agency comments, both the co-applicants and staff have revised the proposed and staff alternative transmission alignments to address issues raised in the comments on the draft EIS including conflicts with businesses, housing developments, wetlands, oak woodlands, fire fighting protocols, recreational use of hang gliding launch sites and trails, and the aesthetic effects on wilderness and back country areas. The development of transmission alignments under consideration in the final EIS took into account the need to efficiently convey power while avoiding as many effects on environmental resources as possible.

Comment 35: The Corps recommends the final EIS include project alternatives with reduced effects on waters of the United States and a detailed discussion of practicability in terms of engineering, cost, and logistics as part of the section 404 analysis. If these requirements are not met in the final EIS, the Corps states it would conduct its own analysis before reaching a final permit decision.

Response: The co-applicants provided additional technical studies in their filing of April 25, 2006, including delineations of jurisdictional waters and wetlands at the Decker Canyon and Morrell Canyon upper reservoir sites. We include this information along with a new figure 14 that shows the location of waters of the United States and the state of California at the upper reservoir sites. In section 3.3.4.2, we conclude that construction at the Decker Canyon reservoir site would have a smaller effect on waters of the United States than construction at the proposed Morrell Canyon site. Due in large part to this finding, we include the Decker Canyon reservoir site in the staff alternative. We conducted a detailed review of the engineering assumptions, costs and logistics of the construction of both the proposed and staff

alternative facilities and presented the information about the practicability of this alternative in section 4.1 of the draft EIS.

Comment 36: The California Department of Fish and Game (CDFG), the Fernandez Parties, the Center for Biological Diversity, and Pacific Clay believe that the Commission did not explore all project alternatives and that the co-applicants have not fully explored the cost and feasibility of implementing other renewable options that would be less detrimental to the environment. CDFG further states that it does not concur with the draft EIS finding that the generation of renewable power by the placement of a hydroelectric facility within a location as environmentally sensitive and valuable as Morrell Canyon and the Cleveland National Forest is more beneficial than producing the required additional electricity via gas-fired means in non-sensitive areas.

Response: We did not conclude that a Morrell Canyon upper reservoir was a preferred location nor did we conclude that the project was more beneficial than producing electricity via other means, but rather concluded on page 5-1 of the draft EIS that both the staff alternative and co-applicants' proposal would likely be more expensive than a combustion turbine alternative.

Comment 37: The State Water Board agrees the Morrell Canyon upper reservoir option is the more environmentally sensitive and the Decker Canyon option is the least environmentally sensitive; however, the effects of the project on Decker Canyon must be fully analyzed by further footprint assessments.

Response: The co-applicants filed the results of their wetland delineations at the upper reservoir locations in appendix F to their comments on the draft EIS. We have included this new information in the final EIS and have added a new figure 14 that shows jurisdictional wetlands in relation to the alternative footprints for the upper reservoir in Decker Canyon. The USFS filed revised preliminary 4(e) conditions on June 23, 2006, that include plans for pre-construction surveys and post-construction monitoring of ground and surface waters at the upper reservoir location. We discuss these preliminary conditions in the final EIS. These pre-construction surveys may result in modifications to the footprint of the upper reservoir at Decker Canyon.

Comment 38: Francis Hoffman, on behalf of the Elsinore Testing of Experimental Aircraft Mechanism, and Robert and Susan Konoske question why an alternative placing transmission lines completely underground was not included in the draft EIS. Mr. Hoffman further states that placing the transmission lines underground would make them less terrorist-vulnerable. The Fernandez Parties also question why the draft EIS did not include alternatives that would: (1) route the lines outside the Cleveland National Forest, such as along Interstate 15; (2) place the transmission lines completely underground; or (3) avoid placement of substations and transmission towers and lines near private property.

Response: As stated in section 2.5.3 of the draft EIS, we considered several variations for the transmission alignment that included placing segments underground to avoid conflicts with hang gliding activities. We cited cost as the primary reason for eliminating these alternatives. Based on comments on the draft EIS and subsequent filings by the co-applicants, both the co-applicants' proposed and staff alternative transmission alignment would place the transmission line underground near the hang gliding launching and landing areas and along the east-west connection to the powerhouse location. However, we find that placing the entire length underground would still be cost-prohibitive, adding $320 million to the project costs. Interstate 15 was not considered as a viable alternative for an overhead route because of Caltrans written policy that issuing a Utilities Permit for a Freeway Aerial (UF) transmission line requesting a longitudinal encroachment is normally not permitted. In reviewing the co-applicants consideration of alternative transmission alignments we concluded that there were no alignments that would entirely avoid proximity to existing or planned residential communities, even when going deeper (west) into the Cleveland National Forest.

Comment 39: CDFG states that because the project is contingent on the installation of the transmission line once the final alignment has been determined, a detailed analysis of the effects associated with the transmission line should be included in the EIS.

Response: Both the draft and final EIS include our assessment of the effects of the proposed and staff alternative transmission alignments on environmental resources.

Comment 40: Robert and Susan Konoske cite information presented on page 3-133 of the draft EIS that 11.1 acres of vegetation would be disturbed by the construction of temporary roads to install the transmission line. They question whether one can build 30 miles of transmission line with only 6.1 miles of temporary roads (they assume the roads will be 15 feet wide, whereas the authors of the draft EIS assume the temporary roads would be 12 feet wide).

Response: In the draft EIS we estimated that along the 5.1 miles of the proposed transmission alignment having slopes less than 15 percent the conventional installation of transmission lines would require 7.6 miles (not 6.1 miles) of temporary access roads. Straight road width estimates vary from 12 feet wide (see the Antelope-Pardee 500-kV Line Draft EIR/EIS [CPUC/USFS, 2006]) to 14-feet wide (see SDG&E's Sunrise Powerlink 500-kV Project Application [SDG&E, 2006]). Roadway widths also range from 14 to 20 feet-wide at curves to allow safe movement of construction equipment and vehicles (SDG&E, 2006, Chapter 2). At structure sites located in rugged terrain with grades that exceed 15 percent, small vehicles and manual labor delivered via helicopters will be used during construction. Approximately 78 percent of the co-applicants' proposed alignment and 80 percent of the staff alternative transmission alignment presented in final EIS is expected to have structures located on grades exceeding 15 percent. Based on this, we estimate that 10.8 and 9.3 miles of temporary road would be needed for the two alignments. This is an increase over the estimated 7.6 and 10.3 miles of temporary roads presented in the draft EIS and reflects the longer lengths of both the revised co-applicants and staff alternative transmission alignments.

Comment 41: The Honorable Darrell Issa, Ken Calvert, Mary Bono, and Duncan Hunter in comments in support of the LEAPS Project request that FERC adopt the co-applicants' proposed transmission line because it minimizes the visual impact on several existing and proposed housing developments. They comment that keeping the proposed line farther in the Cleveland National Forest is a better option than siting the line close to those developments.

Response: The mid-slope transmission alignment presented in the draft EIS crossed major planned subdivisions in Horsethief Canyon and at Ortega Oaks, mining operations of the Pacific Clay Company, as well as dozens of private in-holdings west of Grand Avenue and in the vicinity of the residential area at LaCresta. This initial alignment was designed to minimize interference with fire suppression activities, avoid designated wilderness and back country non-motorized areas in the Cleveland National Forest, and reduce effects on hang-gliding activities. Commission and USFS staff developed a revised staff alternative transmission alignment in response to hundreds of complaints about the proximity of our mid-slope transmission alignment to private residential and commercial development. Our revised staff alternative transmission alignment avoids as many private in-holdings with the Cleveland National Forest as possible while continuing to avoid the San Mateo Wilderness Area and to minimize encroachment on lands designated as back-country, non-motorized and back-country, motored-use restricted in the Land Management Plan. The staff alternative transmission alignment lies within 0.25 mile of 452 privately-owned parcels while the co-applicants proposed alignment lies within 406 privately-owned parcels, with the major difference being along the southern segment of the alignments where the staff alternative avoids crossing back country areas. The figures presented in appendix F compare the co-applicants' proposed and staff alternative transmission alignments.

Comment 42: Jon R. Johnson recommends an alternate transmission line alignment that extends to the lower portion of the mid-slope alignment approximately 0.5 mile to the north and then ascends the slope to the north of Edwards launch site. He states that this would allow the lines to cross the Main Divide Road in an area where the terrain is flat on both sides of the road, allowing greater fire fighting ability and residents to pass during a fire.

Response: We appreciate your suggestions on how best to route the proposed transmission line near Edwards launch site. The staff alternative transmission alignment was modified in the final EIS to address concerns about fire fighting and hang gliding safety.

Comment 43: Rancho Capistrano Property Owners Association and Bruce Campbell recommend analysis of alternate transmission line routes along the freeway corridor or in the wilderness area away from homes and roads.

Response: Both the co-applicants' and staff alternative transmission alignments now include underground segments near the egress to the community of Rancho Capistrano, and the staff alternative transmission alignment, which is under consideration in the final EIS, now avoids private in-holdings in the Cleveland National Forest. However, there is no provision in the Wilderness Act that would allow for the inclusion of a power transmission line within the designated San Mateo Wilderness. Transmission line alignments along freeway corridors were not considered in the draft EIS**.** I-15 was not considered as a viable alternative for an overhead route because of Caltrans written policy that issuing a Utilities Permit for a Freeway Aerial (UF) transmission line requesting a longitudinal encroachment is normally not permitted. This information can be found at:
http://www.dot.ca.gov/hq/traffops/developserv/permits/encroachment_permits_manual/index.html

Comment 44: SDG&E requests a more specific location map of the site of the southern substation be included in the final EIS with an aerial photograph base at a scale more useful for a detailed site review. SDG&E needs a better map to determine that the location, site characteristics, and environmental conditions are feasible from engineering and cost perspectives and that environmental and permitting issued can be addressed in a timely and cost-effective manner.

Response: Appendix F of the final EIS includes a more specific location map shown on an aerial base or U.S. Geological Survey (USGS) map at a scale that is more useful for a detailed site review.

Comment 45: SDG&E requests the final EIS include a discussion on why the south substation site and SDG&E substation site alternatives were eliminated from consideration.

Response: The SDG&E substation alternative shown on figure 8 was erroneously shown as an existing substation. It was eliminated because its purpose and location were replaced by the alternative substation shown in the revised figure 8. The alternative substation was included in the staff alternative mid-slope alignment and its various environmental issues were discussed in the draft EIS. The co-applicants have filed a revised transmission alignment that includes their preferred southern substation site. The co-applicants' preferred location is generally underneath or adjacent to the existing SDG&E 230-kV transmission line partially within, or directly adjacent to, the boundaries of Camp Pendleton, east of the existing Case Springs Fire Station (No. 28).

Comment 46: SDG&E requests a clarification on the type of habitat depicted in table 15 (pages 3-114 and 3-115) that would be affected by the construction of the southern substation—disturbed or chaparral.

Response: We have added headers to table 15 in the final EIS to clarify that the proposed southern substation is currently disturbed, and that the alternative southern substation location is characterized by chaparral.

Comment 47: SDG&E expressed its concern that a 25-acre 500/230-kV substation site may not be large enough for planned project and future equipment.

Response: We reviewed the Single Line Diagram, General Arrangement and conceptual Grading Plan for the Central East Substation (as shown in the Sunrise Powerlink Application [SDG&E, 2006]) and performed a conceptual layout based on the 500-kV and 230-kV equipment components in the southern substation to arrive at a revised site requirement of 50 acres. This value was found to be consistent when compared to the Antelope Substation (as shown in SCE's Antelope-Pardee 500 kV Transmission Line Project Application [CPUC/USFS, 2006]).

Comment 48: SDG&E requests that additional detail be provided for the south substation and that SDG&E be allowed to provide input on its requirements to ensure that the impact analysis is as accurate and complete as possible.

Response: In their filing of April 25, 2006, the co-applicants requested based on continuing discussions with SDG&E, Camp Pendleton, and additional engineering studies, the relocation of the proposed southern substation from the Tenaja area to an area south of the existing Case Springs Fire Station, within the existing SDG&E right-of-way and beneath SDG&E's existing 230-kV lines, within or adjacent to Camp Pendleton. This alignment was originally alternative 5 as shown on figure 8 of the EIS and is now included as part of both the co-applicants proposed and staff alternative transmission alignment. In the co-applicants' System Study of equipment quantities and capacities, the southern substation would contain two 500-kV breaker-and-a-half bays, two 1,000 MVA 500/500-kV phase-shift transformers, two 1,000 MVA 500/230-kV transformers, and two 230-kV breaker-and-a half bays. If licensed, Nevada Hydro would consult with SDG&E directly about the design of the southern substation.

Comment 49: SDG&E requests the final EIS disclose the status of the March 16, 2005, application for water quality certification under section 401.

Response: The status of the application for water quality certification as of the date of issuance of the final EIS is discussed in section 2.4.2.3 of the final EIS.

Comment 50: Edith Stafford asks if the proposed project is consistent with the California Water Code 71663.5 (b) and (d), which she interprets to mean that: (1) a water district can generate power for its own purposes and may sell surplus power to a public or private entity that is engaged in the distribution or sale of power and (2) a water district may not acquire property employed in the generation of power for public or private utility purposes, except by mutual agreement between the district and the owner of that property. Linda and Martin Ridenour also point out that Elsinore Valley MWD does not have eminent domain authority and must acquire property through mutual agreement. They request that the final EIS include documentation that allows Elsinore Valley MWD to provide electric power generation.

Response: The co-applicants are required to comply with federal, state, and local laws and regulations. We note that Nevada Hydro also is an applicant and is not a water district. Any license issued by the Commission would include the use of eminent domain if necessary to allow the co-applicants to build the project and to sell the power generated by the project, subject to all the necessary state and federal permits.

PROJECT SAFETY

Comment 51: Riverside County states that project licensing should not occur until there is sufficient project design to determine the boundaries of the dam inundation area and it is assured that potential effects can be mitigated. Precise inundation maps and flows resulting from a potential dam/dike break should be provided to the Riverside County Fire Department, Office of Emergency Services so that these plans can be reviewed for compliance with local and state regulations. Lake Elsinore United School District is also concerned with the lack of discussion in the draft EIS regarding flooding danger from a potential dam break.

Response: Figure 10 in the draft EIS shows the potential extent of inundations that could result from a dam or dike break. This figure was developed from a more detailed study included in the license application. If the project is issued a license, the licensees would need to prepare more detailed dam break studies and coordinate with local agencies to develop an emergency action plan.

Comment 52: Mr. Campbell asks whether the USFS would use more toxic fire retardants in the future as a result of any limitations on fire fighting that might result from the construction and maintenance of the transmission lines.

Response: The proposed location of the towers and lines may result in less efficient firefighting in the area and could result in less or more retardant used overall. USFS indicates that a variety of fire suppression techniques will be used to control, contain, and suppress wildland fires.

ENVIRONMENTAL CONSEQUENCES/GENERAL

Comment 53: The Natural Resources Defense Council and Pacific Clay state that the project's effects are not discussed in the draft EIS at a sufficient level of detail. The Center for Biological Diversity and the Orange County Chapter of the California Native Plant Society also question how an informed decision can be made about the proposed action until more knowledge is provided by detailed habitat studies, mitigation, and monitoring plans. EPA states that the draft EIS does not provide sufficient information to demonstrate that any of the build alternatives represent the least environmentally damaging practicable alternative. The State Water Board, the Fernandez Parties, Pacific Clay, and SDG&E also indicate that several studies and mitigation measures identified in the draft EIS should be conducted prior to issuance of the final EIS instead of deferred until after license issuance. The Fernandez Parties state the draft EIS was prepared prematurely because the co-applicants' proposal is in the conceptual planning stage and does not include information needed to adequately assess potential effects.

Response: The draft and final EIS include a sufficient level of detail to assess the potential effects of the proposed project on environmental resources in the project area. We acknowledge that facility designs are still conceptual. We are confident that the level of information provided in the proceeding is sufficient to allow Commission and USFS staff to make an informed judgment of the relative effects of the alternative project configurations. Any license issued by the Commission and any permit issued by the USFS would include requirements to complete studies and resolve the details of any outstanding environmental issues prior to the commencement of construction.

Comment 54: Riverside County, Pacific Clay, the Center for Biological Diversity, and Lake Elsinore Unified School District state that the draft EIS does not supply specific locations and acreages to be affected by construction laydown areas during development of the powerhouse, the upper reservoir, the intake/outlet tunnels, and acreages affected during construction of the transmission lines or upstream detention basin. The absence of a detailed plan limits the ability of reviewers to completely assess the potential effects resulting from the project and the adequacy of mitigation measures. Pacific Clay states

that the draft EIS should be withdrawn, revised, and recirculated for no less than 120 days for public review and comment.

Response: The draft and final EIS include specific information on the staging and laydown area acreage that would be affected by the alternative project configurations. The type and amount of vegetative cover that would be affected are shown in table 15 of the draft EIS and have been revised to account for the revised proposed and staff alternative transmission alignments in the final EIS.

Comment 55: The State Water Board questions if the co-applicants would be willing to have an open license until environmental effects are known because much of the environmental documentation and plans have been deferred to post licensing.

Response: We are not sure what you mean by an open license. Any license order issued by the Commission would specify the location of project facilities and require the completion of any outstanding environmental studies specified in mandatory conditions, final design drawings, and plans to protect environmental resources prior to the commencement of construction. In addition, any license issued for the project would include a requirement for a detailed plan, developed in consultation with the resource agencies, for environmental construction monitoring in aquatic and terrestrial environments.

Comment 56: Pacific Clay states that the project outlined in the draft EIS varies from the projects outlined in Scoping Documents 1 and 2, specifically the deletion of a "preferred project" designation, deletions, amendments, and alterations to the project alternatives, and the inclusion of the "staff alternative" at the last minute. It states that because the text of the draft EIS does not match the information from the April 5, 2006, Commission public meeting and because the draft EIS does not contain detailed maps or figures, it was unable to determine where the staff's alignment occurs and therefore is unable to assess potential effects.

Response: In their license application, the co-applicants identified a preferred project, which is treated as the proposed action in the draft EIS. Commission and USFS staff developed a staff alternative based on the analysis of the proposed action and action alternatives presented in the license application. The staff alternative evolved from scoping meeting comments and technical review of the potential effects of the proposed action and alternatives. Following the public meeting and review of comments filed on the draft EIS, Commission and USFS staff developed a revised staff alternative transmission alignment that now avoids conflicts with Clay Products. The Commission issued a notice on October 3, 2006, to property owners affected by the revised alignments and included a detailed aerial-based map with the notice. Property owners were afforded 30 days to comment and the comments are summarized in this appendix and addressed in the final EIS.

Comment 57: Nevada Hydro and a number of agencies expressed concerns about coordination with CEQA. CDFG recommends that the final EIS address the state's concerns pursuant to CEQA and EPA recommends the Commission coordinate with state and local agencies to prepare one document that combines NEPA with state and local environmental impact statement requirements like CEQA. Riverside County also recommends that the draft EIS be rewritten as an EIS/EIR to satisfy CEQA and recirculated for review and comment. The State Water Board states that final designs and sediment control plans and measures should be developed and included in the final EIS or they can not consider it mitigation under CEQA. EPA states that in order to be CEQA compliant, the final EIS should identify and describe all appropriate mitigation measures and contingency measures (if such measures are deemed necessary by monitoring results), referencing any that are adopted into the record of decision and stating whether all practicable means to avoid or minimize environmental harm have been selected. Nevada Hydro requests that the final EIS and the USFS' Record of Decision contain an explicit acknowledgement that federal law authorizes the use of the FERC/USFS document either in whole or in part, in fulfillment of any state-

imposed environmental disclosure requirements such as those associated with California Environmental Quality Act (CEQA) and section 1500.4(n) and (o), 1500.5(h), 1506.2, and 1506.4 of CEQ regulations implementing NEPA.

Response: Elsinore Valley MWD is the lead agency for CEQA review. In the EIS, we have addressed all of the CEQA requirements to the extent possible given the information provided in the license applications. The Commission is considering the overall proposal in the EIS. If licensed, the licensees would need to provide the details associated with many of the mitigation measures in the plans recommended by staff and specified by USFS that would be developed in consultation with the federal and state resource agencies and local agencies.

Comment 58: The city of Lake Elsinore states that the EIS should include a condition that the construction of power generating facilities occurs before the construction of the transmission lines.

Response: The sequence of construction would be considered in any license issued by the Commission for this proposed project.

Comment 59: The city of Lake Elsinore recommends an adaptive management plan be developed and implemented which includes a rigorous 3-year post-construction monitoring program, mitigation measures in the event that the project causes unanticipated and ecologically significant environmental effects, establishment of a third-party administered fund for the protection of habitat, and the establishment of an independent scientific oversight panel.

Response: USFS revised preliminary 4(e) condition no. 32 (Environmental Monitoring) includes the type of construction monitoring and adaptive management program that you recommend. The detailed monitoring plan would be developed in consultation with resource agencies.

GEOLOGICAL AND SOIL RESOURCES

Comment 60: Pacific Clay states that the geology, soils, and erosion analysis in the draft EIS is inadequate because project facility sitings have not been finalized, geophysical survey data has not been confirmed, stream crossings have not been mapped, no studies or data are provided to support conclusions regarding the effects of lake level fluctuations on Lake Elsinore shorelines, and proper mitigation is not proposed. Pacific Clay also is critical of the analysis in the draft EIS regarding applicable requirements of state and local agencies, effects on local storm drainage facilities, formulation of mitigation to control erosion and surface runoff, and secondary effects of migration measures because it defers the analysis to post-licensing.

Response: The draft and final EIS include a sufficient level of detail to assess the potential effects of the proposed project on environmental resources in the project area. We acknowledge that facility designs are still conceptual and additional geotechnical studies are proposed. We do identify stream crossings in section 3.3.2.2 of the draft EIS and evaluate the potential effects on stream crossings in the water resources section. The co-applicants filed additional information including studies of the potential effects of lake level fluctuations (Anderson, 2006) that have been added to the final EIS. The level of information provided in the proceeding is sufficient to allow Commission and USFS staff to make an informed judgment of the relative effects of the alternative project configurations. Any license issued by the Commission and any permit issued by the USFS would include requirements to complete studies and resolve the details of any outstanding environmental issues prior to the commencement of construction.

Comment 61: The State Water Board states that the upper reservoir clearing plan should be developed for the final EIS so that the public and agencies can determine if the plan would mitigate or address those

affects identified in the draft EIS. It states that the final EIS should discuss spoil storage areas, storm runoff management, and spoil stabilization measures.

Response: The upper reservoir clearing plan would be developed in consultation with the state and federal resource agencies and filed with the Commission prior to the commencement of any construction. This plan would include the specifics relative to the location and management of spoil storage areas.

Comment 62: SDG&E states that over the term of the license, sediment transport at velocities of 40 feet/second (on page 3-52 of the draft EIS) would cause significant corrosion on most pipe materials and requests this design be reassessed.

Response: We agree that the design of the upper reservoir would need to provide for an emergency spillway or overflow pipeline of sufficient size and durability to control waters during a maximum probable flood. Design details of this nature are generally addressed during the final design phase and are subject to an external engineering board of review. The example cited by staff in the draft EIS was provided simply to illustrate the large diameter and high velocities that would be involved in controlling such a hydrologic event. In the final EIS we've modified our example to reflect a pipe size that results in water velocities that would not be detrimental to an overflow pipe, should that be the design solution.

Comment 63: The State Water Board states that the final EIS should disclose the type and materials to be used for the cofferdam in the construction of the tailrace/intake structure and whether or not the cofferdam would require the driving of sheet-piling into the lakebed sediments.

Response: The draft EIS indicates that the co-applicants would use a cofferdam; however, the material specifications for the cofferdam would be submitted in the final design plans, which would be reviewed by the independent board of engineers, the Commission, and applicable agencies, including the State Water Board.

Comment 64: The city of Lake Elsinore notes that the draft EIS does not address the potential effects that higher average water elevations would have on Lake Elsinore's levee system.

Response: Alteration to the lake's water surface elevations were evaluated under the Environmental Impact Report for the Lake Elsinore Stabilization and Enhancement Project. A key objective of that project is the stabilization of the water level of Lake Elsinore, by maintaining the lake elevation within a desirable operating range (minimum of 1,240 feet msl to a maximum of 1, 247 feet msl). The proposed LEAPS Project does not intend to operate outside of the lake levels evaluated in the Lake Elsinore Stabilization and Enhancement Project and therefore should not affect the levee system. Also, we have recommended that any license issued for the project include a requirement for a revised lake operating plan to include the pumped storage project operations.

Comment 65: The State Water Board points out an inconsistency in the project description regarding vegetation management along the transmission alignment. It notes that in several places the EIS says that vegetation clearing or management is not proposed; however, on page 3-20, the EIS states that periodic vegetation clearing may be needed due to high fire risk. The State Water Board requests clarification so it can assess the potential for erosion and sedimentation of streams. The Center for Biological Diversity also comments on the analysis of the effects of vegetation clearing and raises concerns about the lack of analysis of the potential effects of fire abatement activities on soils and soil productivity. It further comments that the final EIS include specific details about the BMPs to be taken to protect the integrity of stream ecosystems during construction and operation of the project.

Response: The co-applicants do not propose to clear vegetation under the transmission line, but fuel management in the future may require manipulation to reduce the risk of fire. Methods selected for fuel management would depend on site-specific factors (e.g., vegetation type, slope, aspect, access), and could include grazing, prescribed fire, or mechanical means to create and maintain firebreaks. Existing firebreaks that intersect the proposed alignment would also be maintained, as needed. We have revised the final EIS to reflect these factors.

Comment 66: The Center for Biological Diversity notes that during 2004-2005 winter storms, numerous transmission line towers located on steep slopes experienced substantial damage. It recommends that the final EIS discuss the risks to property, life, and the environment as well as the costs associated with maintaining and repairing the extensive lengths of transmission lines. It also asks that the EIS disclose whether there have been similar lengths of transmission line installation and maintenance via helicopter at other locations.

Response: If licensed, the co-applicants would be required to develop and file with the Commission an emergency action plan to avoid risks to property, life, and environment in case of emergencies. About 12 miles of the Valley–Serrano 500-kV Transmission Line cross the Trabuco Ranger District of the Cleveland National Forest in an east-west alignment. Much of the line was constructed by and is presently maintained using helicopters.

Comment 67: Riverside County indicates that no geotechnical studies are provided to determine whether soils excavated during construction of the powerhouse would qualify for use in the construction of the upper reservoir main dam or perimeter embankment. Determining whether a balance can be achieved between excavation and fill materials onsite can not be determined without further testing of subsurface soils.

Response: We agree that additional geotechnical studies would be necessary to determine whether soils excavated from the powerhouse sites would be suitable to use as fill for the upper reservoir dam. However, we conclude in the draft EIS that transporting excavated materials from the powerhouse to the upper reservoir site would tax the local traffic and roads and recommend that excavated materials from the powerhouse construction be disposed of off-site. We recommend a balance of excavated and fill be achieved at the Decker Canyon upper reservoir site.

Comment 68: Riverside County states that the draft EIS fails to identify and quantify the subsurface effects on project components that may result from the active faults in the project location.

Response: We discussed seismic considerations for project construction and operation in the *Geology and Soils* section of the draft EIS (on page 3-26), as well as in the Developmental Analysis section (at pages 4-2 and 4-3). Specific potential effects of the faults that we mentioned in our analysis include damage to project infrastructure or construction-related equipment, or injury or loss of life of construction crews.

Comment 69: The State Water Board and Pacific Clay state that it appears to be necessary to answer the questions and disclose the answers regarding seismic issues in the construction of the proposed Santa Rosa powerhouse and tailrace/intake structures due to the cost of the proposed project. The Lake Elsinore United School District is critical of the discussion in the draft EIS regarding the potential affect of a seismic event on the project and mitigation, including its ability to withstand an earthquake and the risk of a high-pressure water line rupture. The EPA recommends the final EIS indicate geologic/seismic hazard mapping would be completed before the Commission licenses this project in order to ensure that site and mitigation selection is based upon this information.

Response: We discussed seismic considerations for project construction in the Developmental Analysis section (on pages 4-2 and 4-3), and made cost adjustments to reflect those considerations. In its March 2006 report appended to the April 25, 2006, filing by Nevada Hydro, Genterra Consultants indicate that faults may lie beneath all three powerhouse sites and that detailed investigations of faulting would be undertaken once the powerhouse location is selected. These additional studies were proposed by the co-applicants and recommended by the staff in the draft EIS as part of the final design process. The final designs process would include detailed geologic and seismic studies and analyses, which would be reviewed by the Commission and appropriate agencies prior to the commencement of any construction.

Comment 70: The State Water Board states that deferring analysis and mitigation regarding dam breach and dike failure is inconsistent with CEQA, whereas Pacific Clay states it is inadequate under NEPA.

Response: The draft EIS includes a summary of the dam break and inundation analysis developed by the co-applicants and included in the license application. Figure 10 on page 3-31 of the draft EIS shows the potential inundation that could result from a dam or dike failure. The information provided in the draft EIS is sufficient to address the potential effects of the unlikely occurrence of a dam breach or dike failure. If the project is issued a license, the licensees would need to prepare more detailed dam break studies and coordinate with local agencies to develop and file with the Commission's Division of Dam Safety and Inspections, an emergency action plan.

WATER RESOURCES

Water Quantity

Comment 71: The U.S. Department of the Interior (Interior) comments that relative to table 3 in the draft EIS, the monthly streamflow statistics for the USGS gage no. 11070500 for the entire period of record (1916-2004) are available on the USGS web site. It also notes that the gage number in the table is incorrect.

Response: We have corrected the gage no. in table 3 to read “11070500” to be consistent with the text. Although a long period of record for this gage is available, considerable development has occurred in the basin and it appears that the 30 years from 1975 through 2004 would be more representative of current hydrologic conditions. Additionally, a 30-year representative period of record is fairly common in hydrology and in this case, more appropriate for our analysis of the effects of the proposed project operations on lake level.

Comment 72: Interior points out that the highest peak flow recorded at USGS gage no. 11072100, Temescal Creek near Corona, since the construction of the flood control improvements in the 1990’s is now 4,030 cfs recorded on January 9, 2005.

Response: We have made this suggested edit to the final EIS.

Comment 73: Interior comments that figure 11 does not accurately depict the frequency curve for Lake Elsinore lake level elevations under current conditions and mis-labels elevation of 1,263.3 feet msl.

Response: We have corrected the mislabeled elevation on figure 11. The curve shown is an elevation-duration curve based on daily values. Interior argues that the 100 year flood value of 1,263.3 feet msl should correspond to the 1-percent value; however, flood analyses are based on the record high for each year and are based on instantaneous maximum elevations for the year (a different type of analysis). The correct definition of a 1-percent exceedance elevation in the context of this curve would be the elevation equaled or exceeded at least 365 days out of a 100-year period of record.

Comment 74: Nevada Hydro provides a technical analysis of the potential water quality impacts of the LEAPS Project on Lake Elsinore (Anderson, 2006) that concludes that the LEAPS Project could either enhance or impede dissolved oxygen (DO) conditions, suspended sediments, and the development of an aquatic macrophyte community; however, the overall effects are still unclear at this time. The report recommended that additional heat calculations be performed and an ecological model conducted. As such, Nevada Hydro requests that any additional water quality studies that might be required as a condition of any license be limited to the LEAPS Project and not required of a transmission stand alone project.

Response: Because both aspects of the proposed project— as a complete unit of development, the hydropower and the transmission line—would require a license, they are both subject to license conditions that could include monitoring.

Comment 75: The Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) indicates that, other than the payment of money each year to buy water to stabilize lake levels, the other claims of water quality improvement provided by the Lake Elsinore Stabilization and Enhancement Project, as stated in the draft EIS, would occur even if the project does not move forward. Therefore, the Santa Ana Water Board requests the final EIS indicate how much water can be purchased through the lake management fee and how it would affect lake levels.

Response: The effect on lake levels was summarized in figure 11 of the draft EIS. The lake management fee provides a vehicle for paying for supplemental water which we estimate to be from 4,000 acre-feet to 15,000 acre-feet depending on the water year. Replacement water would come from wells and would be primarily from recycled water by year 2020. We assume that the management fee would pay for the water needed to maintain water level targets included in the plan.

Comment 76: The State Water Board states that the draft EIS does not describe the area of relicted lakebed (fluctuation zone) that would result from the drop in water elevation on Lake Elsinore from project operations. It states that the final EIS should include an assessment based on bathymetry data that discloses the areal extent of the expanding shoreline due to project operations at various lake levels, including drought years.

Response: We have revised section 3.3.1.2 of the final EIS to include new information (Anderson, 2006) on the areal extent of the shoreline migration resulting from the daily and weekly fluctuation of the water surface elevation under proposed project operations.

Comment 77: The Santa Ana Water Board would like a discussion in the final EIS on the project's policy of operation during low lake levels, such as occurred during the drying cycle from 1941 to 1973 when Lake Elsinore regularly dried up.

Response: The co-applicants have specified that the minimum operating level for the LEAPS Project would be 1,240 feet msl. The project would not operate below this level. A comparison of operations under baseline and 2020 conditions is provided in section *3.3.2.2, Environmental Consequences Water Quantity.*

Comment 78: Nevada Hydro comments that the description in section 3.3.2 on page 3.51 of the draft EIS that the co-applicants propose to operate the lower reservoir (Lake Elsinore) between 1,240 and 1,249 feet msl is incorrect. Nevada Hydro requests that the text be clarified to state that the operational range of the proposed project is 1,240 to 1,247 feet msl and that any operation of Lake Elsinore would be independent of the proposed projects and would be undertaken by the Elsinore Valley MWD, operating in conjunction with other agencies and acting separately from the hydropower project. Further, Nevada

Hydro states that as proposed, the facility operators would pay to Elsinore Valley MWD a lake management fee. Under the provisions of an operating agreement to the operator, the Elsinore Valley MWD would maintain Lake Elsinore at a minimum depth of 1,240 feet msl. Therefore Nevada Hydro states that the two energy projects would have no direct obligations or responsibilities with regard to the active management of Lake Elsinore.

Response: We have revised the text in the final EIS to read that the co-applicants propose to operate the project within the fluctuation range of 1,240 and 1,247 feet msl. We respectfully disagree that the co-applicants would have no responsibilities relative to the operation of Lake Elsinore. Under any license issued for the LEAPS Project, Lake Elsinore would be part of the complete unit of development in that it is required for the operation of the project and a revised operating plan for the pumped storage operation would be necessary.

Comment 79: The Center for Biological Diversity states that an increase in the maximum water levels to 1,249 feet msl could potentially have impacts on flooding within the city of Lake Elsinore and requests that the final EIS address this public safety issue.

Response: The co-applicants propose to operate the pumped storage consistent with the target minimum and maximum lake levels of 1,240 and 1,247 msl recommended in the Lake Elsinore Stabilization and Enhancement Project. As proposed, the pumped storage project operations would not increase the maximum target lake level. We have revised section 3.3.2.2 of the final EIS to reflect the co-applicants' intent. We recommend that the co-applicants develop a revised lake operating plan for Lake Elsinore. This plan would address how the Elsinore Valley MWD would operate Lake Elsinore to meet the objectives of the pumped storage operations within the target elevations established by the Lake Elsinore Stabilization and Enhancement Project and to make sure that the operation of the project would not have unintended consequences such as flooding. We further describe this plan in section 5 of the final EIS.

Comment 80: Riverside County states that the proposed reservoir/dam could potentially impound flood waters during the rainy season and design of the reservoir/dam should accommodate the flooding and normal operating volume.

Response: A FERC-licensed project must have a spillway designed in accordance with the Commission's Engineering Guidelines and the spillway must accommodate appropriate flood conditions. More detailed hydrologic design would be conducted for the effects of flood waters at the licensed upper reservoir site. Normal operations are accommodated by the co-applicants' proposed reservoir preliminary designs.

Comment 81: SDG&E indicates the proposed water level fluctuations at Lake Elsinore, as described on p. 3-54, are in conflict with the Fisheries Management Plan and recommends a water level management plan be developed to mitigate for effects on target sport fisheries.

Response: Actions proposed in the Fisheries Management Plan anticipate the stabilization of lake level fluctuations between 1,240 feet msl and 1,247 feet msl. The proposed project will operate within those lake levels. However daily flow fluctuations of 1 foot during the week and to 1.7 feet during the weekends would likely prevent many submergent plant species from establishing within the fluctuation zone and rooted shallow-water vegetation that provides spawning, rearing, foraging, and cover from predators would continue to be limited, particularly in the shallow, southern area of the lake.

Comment 82: EPA and the Center for Biological Diversity recommend that the final EIS include more detailed information regarding the potential effects of the Morrell Canyon reservoir on groundwater resources and discuss measures to mitigate any adverse effects to groundwater and to potential

construction problems. EPA also recommends that the final EIS analyze how the Morrell Canyon reservoir site alternative would affect upstream and downstream flows, flows from Lion Spring, and designated beneficial uses.

Response: We recognize that additional information on groundwater characterization may be developed, once a preferred site for the upper reservoir is selected. We recommend the Decker Canyon site over the Morrell Canyon site. On page 5-24 of the draft EIS we described a groundwater monitoring program that would address potential impacts on ground water at either upper reservoir site. We summarized information on hydrology from the license application and responses to additional information requests in the affected environment section of the draft EIS. In response to the draft EIS, the USFS filed revised preliminary 4(e) conditions including a new condition that specifies the development of a groundwater management plan. The USFS plan would include studies to determine baseline groundwater conditions prior to the commencement of construction.

Comment 83: The State Water Board states that additional groundwater studies should be conducted at the Decker Canyon site because only geologic assessments for groundwater have been conducted. Pacific Clay is critical of the analysis in the draft EIS regarding the effects of operation on groundwater and the effects of the failure of the proposed liner system on groundwater in the San Juan Basin, groundwater recharge, and potential make-up water. EPA recommends the final EIS include the leak detection monitoring and mitigation plan, including action levels and response measures that would be required for the types of leaks that could occur and demonstrate the long-term effectiveness of the reservoir liner and leak detection system.

Response: We respectfully disagree. Our cost estimate in the draft EIS does address site-specific geological and groundwater conditions. Implementation of the staff recommended upper reservoir and water conduit program to monitor groundwater and implementation of USFS revised preliminary condition no. 36 specifying a groundwater management plan would address the concerns about the long-term operation of the reservoir liner.

Water Quality

Comment 84: The Corps indicates that the draft EIS does not include a quantification of waters of the United States that could be affected by the project and no mitigation to offset losses of waters of the United States. It recommends this information be included in the final EIS.

Response: We have added new information to section 3.3.4.2 about waters of the United States at the Morrell Canyon and Decker Canyon reservoir sites and their functions and values, based on reports filed by the co-applicants as attachments to their comments on the draft EIS. New figure 14 shows the jurisdictional waters relative to the proposed and alternative upper reservoir locations.

Comment 85: Riverside County states that the proposed intake/outtake structure at Lake Elsinore should be designed to ensure disturbance of sediments in the bottom of the lake are avoided to the satisfaction of the city of Lake Elsinore and the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board).

Response: The co-applicants propose maximum velocities at the intake/outflow structure not exceed 1.5 feet per second. We recommend the co-applicants consult with the Santa Ana Water Board and local authorities prior to final design approval by the board of three qualified engineers. Additionally, agency and governmental approval could be included as part of the permitting of all dredging and work to be performed in waters of the U.S. (including the intake/outflow structures) which would be the responsibility of the Corps and also would include consultation with other agencies.

Comment 86: The Santa Ana Water Board requests that the final EIS include a discussion of the BMPs that would be used to adequately reduce effects to water quality from the construction of the intake/outflow structures.

Response: In the event of a license being issued, the co-applicants would need to develop an erosion control plan in consultation with the agencies for Commission approval; the erosion control plan would detail the specific BMPs to be implemented to reduce the potential effects of the construction of the intake/outflow structures on water quality.

Comment 87: The State Water Board states that the co-applicants should have conducted soil toxicity assessments on lakebed sediments and the results disclosed in the draft EIS. It also states that, contrary to what is stated on page 3-66 of the draft EIS, there is the potential for effects on water quality and beneficial uses from the release of nutrients and potentially other chemicals during the construction of the tailrace/intake structure. The State Water Board also states that the draft EIS is not clear on what effects the discharges from the outlet pipes will have on the lake's water quality standards.

Response: We considered the degree to which lakebed sediments might be disturbed during the installation of the cofferdam and the construction of the tailrace/intake structure and our analysis indicates that typically very little disturbance would result because excavation would occur in an area physically separated from Lake Elsinore by the cofferdam. We would not expect the release of toxins during this construction. However, fish samples have shown toxins below actionable levels and that is an indication that there could be toxins in the lakebed sediments. Therefore, we recommend, that the lakebed sediments be tested for toxicity prior to the disposals or reuse of the lakebed sediments. We have provided a more detailed description of the proposed construction activity and the potential effects from the construction of the intake/outflow structure in the final EIS. As far as operational effects from flows in the intake/outflow structure with respect to water quality standards we discussed the effects of operations on pages 3-68 and 3-69 of the draft EIS.

Comment 88: The Santa Ana Water Board indicates that the draft EIS states that the co-applicants require target minimum water surface elevation of 1,240 feet msl to operate the pump storage project. The Santa Ana Water Board comments that it was stated that operating the project at lower lake levels would degrade water quality unacceptably. The Santa Ana Water Board requests that a firm commitment of what lake levels the project would operate at to adequately protect the lake water quality.

Response: The co-applicants propose to operate the pumped storage project consistent with the Lake Elsinore Stabilization and Enhancement Project between elevations 1,240 and 1,247 feet msl. Further, the co-applicants propose and we recommend payment of an annual management fee to the Elsinore Valley MWD to maintain the minimum target elevation at 1,240 feet msl. If the project is licensed with either the proposed action or the staff alternative, the licensees would be required to maintain lake levels at or above 1,240 feet msl.

Comment 89: The Friends of the Forest and the Center for Biological Diversity criticize the level of analysis and the conclusions drawn in the draft EIS concerning the potential effects of project operations on the re-suspension of sediments in Lake Elsinore. They also question whether the project proponents can demonstrate whether the project can operate without exceeding existing Total Maximum Daily Load (TMDL) limitations.

Response: The Lake Level Stabilization and Enhancement Project was developed in response to the listing of Lake Elsinore as impaired which triggered development of a TMDL. It is our understanding that the LEAPS Project is related to the Lake Elsinore Stabilization and Enhancement Project, which has

received local governmental and agency support, including the city of Lake Elsinore and the Riverside County. Other environmental documents show that current programs developed to improve water quality (lake level stabilization, axial-flow pumps, and line diffusers) would be beneficial to water quality. Considering the role the proposed project could play in the overall lake water quality, we concluded in the final EIS that the proposed project operations would provide incremental benefits to the same water quality parameters the other programs target through improved mixing of the water column. Furthermore, the thousands of bottom feeding carp in Lake Elsinore are responsible for stirring up sediments throughout the entire lake bottom, not just localized areas as proposed under both the Lake Level Stabilization and Enhancement Project and the LEAPS Project. To clarify the relationships between the proposed action, approved programs, and the existing biotic community, we have augmented the discussion on the potential effects of project operations on the re-suspension of sediments in section 3.3.2.2 of the final EIS (beginning on page 3-67 of the draft EIS).

Comment 90: Mr. Pinnow comments that Elsinore Valley MWD supports the costly program of carp removal because these bottom-feeding fish stir up sediments and yet the potential effects of project operations on the disturbance of sediments could be far more serious than the effects of carp. He points out that computer modeling could be used to study this potential and ensure that the worse-case scenario involving massive fish kills does not occur. He further suggests that the co-applicants be required to post a bond or procure insurance that would compensate home and business owners in an around Lake Elsinore for loss of property values as a result of any decline in the water quality of Lake Elsinore caused by the LEAPS Project.

Response: Carp are considered a nuisance species to the lake with almost 500,000 pounds removed as recently as 2003. We conclude that the proposed project would supply oxygenated water to the sediment-water interface improving nutrient conditions at the bottom of the lake. Further, the intake-outlet structure would be located in a fixed location near the western shoreline and flows into Lake Elsinore would occur within the same linear area on a daily basis whereas carp graze and stir up sediments across the entire lakebed. Additionally, the axial flow program implemented under the Lake Elsinore Stabilization and Enhancement Project is designed to destabilize the water column by applying downward currents toward the lakebed, which would also disturb sediments. Environmental review of this program considered the objectives to be beneficial to water quality. The kinetic energy of the water flowing into and out of the intake structure would further assist in mixing the water column. We discuss the effects of operations on page 3-67 of the draft EIS.

Regarding the co-applicants' requirement to secure insurance for property surrounding Lake Elsinore, it is our understanding that the LEAPS Project is contingent upon the lake levels that are planned to be met under the Lake Elsinore Stabilization and Enhancement Project, which has received local governmental and agency support, including the support of the city of Lake Elsinore and the Riverside County. As discussed in our response to Comment 89, we concluded in the final EIS that the proposed project operations would provide incremental benefits to the same water quality parameters as the other programs.

Comment 91: The Santa Ana Water Board states that recent studies on Lake Elsinore show that under the proposed project operation the southern portions of the lake would experience greater daily shoreline migration than the rest of the lake with an estimated 40 foot average daily shoreline migration when the project operates. The shallow embayments in the southern part of the lake would experience the greatest daily oscillation in exposed sediments, up to hundreds of feet. Because the draft EIS did not address the effects of wave action on the exposed shoreline in the southern part of the lake, CRWQCB recommends further discussion of the effects of increased turbidity from the raising and lowering of the shoreline be included in the final EIS.

Response: Based on Anderson (2006), it is our understanding that the shoreline migration would range from 8 feet to over 100 feet depending on location and shoreline configuration; however, because the amount of shoreline subject to the large shoreline exposures (of up to 100 feet) represents a small percentage of the shoreline length (less than 10 percent) that is predominately located along the southern shore within an embayment with west facing exposure, any increases in turbidity or suspension of fine grained sediments would largely be confined to these protected areas and only marginally effect the turbidity within the main water body of Lake Elsinore. At the same time stable lake levels may be beneficial to these areas by promoting macrophytes or riparian vegetation growth which may promote an evolution of the shoreline substrate in these areas from barren, sandy soils susceptible to wave actions suspending sediments to an aquatic vegetation induced stable substrate that traps suspended materials and prevents future sediment suspension improving water quality. We have modified the text in the final EIS to include this discussion.

Comment 92: The Santa Ana Water Board states that the draft EIS has not taken into account the effect that cycling the water would have on its temperature in the discussion on page 3-68 of the draft EIS regarding the project benefiting the annual mean water quality of Lake Elsinore. The friction exerted on the cycled water as it is pumped to the upper reservoir, cycled down and through turbines may increase the water temperature. The Santa Ana Water Board and EPA recommend a 3-D hydrodynamic model for the lake be developed to predict turbulent energy inputs, mixing, and circulation and their effects on the lake. The Santa Ana Water Board requests that in the final EIS an appropriate model is used to recalculate the effects on the temperature and DO levels of the cycled water.

Response: The cycling of water through 1.5 miles of conduit is likely to have a negligible effect on raising the temperature of the water as the conduits would be underground where annual temperatures are consistently cooler (about 60 degrees F) than the summer lake temperatures (time when the demand for the project would be greatest) thereby negating any increase resulting from friction. Concerning the overall effect of cycling water between reservoirs and the potential effects on Lake Elsinore's thermal regime, we have augmented our discussion on the effects of cycling on temperatures in the lake in section 3.3.2.2 of the final EIS. Further, we find that given the uncertainties associated with the success of other water quality related programs such a the Lake Elsinore Stabilization and Enhancement Project and the axial flow pumps designed to disturb the thermal gradient that develops throughout the lake in the summer, the implementation of a 3-D hydrodynamic model prior to making a licensing decision would not make sense.

Comment 93: The city of Lake Elsinore states that Lake Elsinore and San Jacinto Watersheds Authority (Joint Watershed Authority) has invested considerable funds to develop, build, install, and operate a reliable aeration system for the lake to improve water quality and that any alteration to the design or operation of the existing system to accommodate the project should require mitigation through the development of an equally reliable, dedicated, and applicant-funded aeration system.

Response: We do not expect any negative effects from the LEAPS Project operation on the aeration system implemented as part of the Joint Watershed Authority's Lake Elsinore Stabilization and Enhancement Project. We also note that Dr. Alex Horne (Elsinore Valley MWD and Nevada Hydro, 2005) has suggested that design features could be incorporated into the final LEAPS Project that could be beneficial to the efforts of the Joint Watershed Authority programs. Our recommended revised lake management plan is the proper place to recognize the relationships between the proposed project and other lake management programs.

Comment 94: Riverside County states that the addition of imported water to Lake Elsinore should not introduce Total Phosphorus or Total Nitrogen in excess of the respective TMDL Load Allocations assigned to Supplemental Water discharges to Lake Elsinore. Total Phosphorus offsets for supplemental

water discharges should not be allowed unless the required 35 percent in-lake Total Phosphorous load reductions have been achieved by in-lake nutrient treatment and removal projects.

Response: Make-up water to maintain Lake Elsinore at elevation of 1,240 feet msl would be acquired by Elsinore Valley MWD, using funds from the co-applicants designated for this specific purpose. Because the water would be delivered by Elsinore Valley MWD, the quality of the water would be subject to its allocated or supplemental load allocations under the TMDL. As such, we expect make-up water as part of the proposed project would meet the TMDL requirements.

Comment 95: The Santa Ana Water Board comments that is unclear from the discussion on page 3-67 of the draft EIS what effect the intake/outlet discharges would have on Lake Elsinore water quality, and therefore recommends that appropriate modeling be used to assess the effects of the project on internal nutrient loading in the lake and results be presented in the final EIS. The State Water Board also states that it is unclear what affect the discharges from the intake/ outlet structure into Lake Elsinore would have on the lake's water quality standards because the reversal of flows during project operation could re-suspend bottom sediments.

Response: We have modified the text in section 3.3.2.2 of the final EIS to clarify the expected effects of discharges from the intake/outlet structure during project operations on suspended sediments and nutrients within Lake Elsinore. As noted in our response to comment 92, given the uncertainties associated with the success of other water quality related programs such a the Lake Elsinore Stabilization and Enhancement Project and the axial flow pumps designed to disturb the thermal gradient that develops throughout the lake in the summer, the implementation of a 3-D hydrodynamic model prior to making a licensing decision would not make sense.

Comment 96: Mr. Pinnow comments that water quality analysis in the draft EIS contains some obvious mistakes such as the statement on page 3-67 that "a greater surface area to volume in the upper reservoir" used in support of the co-applicants' view that the operation of the pumped storage project could improve DO in Lake Elsinore. He points out that the average depth of the upper reservoir would be much greater than the average depth of Lake Elsinore (180 versus 15 feet) so that the surface area to volume ratio in the upper reservoir would be less than the surface area to volume ratio in Lake Elsinore.

Response: We have corrected the text in the final EIS based on Mr. Pinnow's comment. At 1,240 feet msl, Lake Elsinore has a surface area of 3,074 acres and a volume of 38,519 acre-feet (surface area to volume ratio of 0.08). Decker Canyon reservoir would have a surface area of about 76 acres which corresponds to a volume of 5,500 acre-feet, resulting in a ratio of 0.01, smaller than Lake Elsinore. However, we still conclude that over time, project operations should provide a measurable benefit to the annual mean water quality by using temperature and oxygen concentration differences between the two water bodies to promote mixing of the water column and control internal nutrient loading within Lake Elsinore**.** Our view that project operations could increase oxygen concentrations within Lake Elsinore is also supported by Dr. Alex Horne in his memo to David Kates filed in response to AIR-WQ-6 (Elsinore Valley MWD and Nevada Hydro, 2005) and by Dr. Micheal Anderson (Anderson, 2006) in his technical analysis of the potential water quality effects of the LEAPS Project on Lake Elsinore submitted to the Santa Ana Water Board, January 31, 2006, and filed by Nevada Hydro as appendix D of its comments on the draft EIS.

Comment 97: The Center for Biological Diversity questions the conclusion in the draft EIS that lake level stabilization would result in benefits to water quality greater than the effects associated with sediment disturbances from the project. It points out the Santa Ana Water Board studies referenced in draft EIS conclude that both control of nutrients and lake level stabilization are necessary to improve

water quality in Lake Elsinore and do not specify that water levels are more important than sediment disturbance.

Response: Based on comments on the draft EIS we have modified the text in the final EIS to clarify the point raised by the Center for Biological Diversity; however, we would also like to note that Lake Elsinore is a terminal lake that has at times completely dried up. The fluctuation in shoreline widths during the historic drying and filling phases of the lake has resulted in sediment disturbances at all reservoir elevations. The cycling of water into and out of Lake Elsinore, and the resulting changes in exposed shoreline would not be substantially different than historical conditions save for the timing between the rising and falling surface elevations. Once water sources and levels are secured, secondary programs and projects have been proposed and implemented to improve the quality of water in the lake. The LEAPS Project is one such project dependent on water levels which could contain design features that could assist the already approved Lake Stabilization and Enhancement Project. The TMDL is the appropriate tool to control nutrient loading into Lake Elsinore and the lake level stabilization has been determined by local agencies as a promising method to improve water quality. We discuss the effects of project operations on water quality in section 3.3.3.2.

Comment 98: The Santa Ana Water Board states that the comments in the draft EIS regarding the positive effects of the project on phytoplankton are speculative and request that the final EIS include more comprehensive documentation of the effects, including specific references supporting the claims. The Santa Ana Water Board also indicates that the draft EIS does not include a discussion of the project's effects on zooplankton in Lake Elsinore, which are important in the reduction of phytoplankton. Dr. Michael Anderson, referenced by the Santa Ana Water Board, states the operation of the project could result in significant zooplankton mortality. As such, the Santa Ana Water Board recommends that the final EIS evaluate the project's effect on zooplankton.

Response: Based on comments on the draft EIS we have modified the final EIS and discuss the anticipated effects of the proposed project on phytoplankton and zooplankton. We conclude that the natural mixing processes resulting from the project operations combined with the increased efficiency of the axial flow pumps, installation of the diffused aeration system and the proposed project should all help to achieve oxic conditions in the subsurface that would help to control algae blooms. Project operations could negatively affect zooplankton populations through entrainment. However, this extent of potential effect would depend on the depth of the intake.

Comment 99: The Santa Ana Water Board and EPA indicate that the effects of operating a pump storage system on a terminal lake are unknown. The Santa Ana Water Board requests a thorough discussion on the possible effects of a pump storage system on a terminal lake, such as Lake Elsinore, be included in the final EIS that takes into consideration the unique nature of this lake.

Response: We conclude that the effects of operating a pumped storage project on a terminal lake like Lake Elsinore would not be substantially different from operating a pumped storage project on a non-terminal lake. The effects of pumping water into and out of Lake Elsinore on a daily basis within the Joint Water Authority's specified target range would be less dramatic over the long term than maintaining lake levels between 1,240 feet msl and 1,247 feet msl on a terminal lake that has dried up completely in the past.

Comment 100: The Santa Ana Water Board requests the following studies be done to better quantify project effects on water quality standards of Lake Elsinore and reduce uncertainty concerning predicted effects: (1) evaluation of the water temperature gain and/or loss that would occur as the project transfers water between the lake and the upper reservoir and back and the effects of the temperature change on water quality; (2) develop and apply a 3-D hydrodynamic model for the lake; and (3) develop an

ecological model that can be used to better understand the trophic cascades that may result from the project. EPA requested the previous two models listed be applied, as well.

Response: We conclude that the information in the record of this proceeding is currently sufficient to assess the potential effects and to recommend proposed measures to address the potential effects. Further, as explained in our response to comment 92, we find that given the uncertainties associated with the success of other water quality related programs such a the Lake Elsinore Stabilization and Enhancement Project and the axial flow pumps designed to disturb the thermal gradient that develops throughout the lake in the summer, the implementation of a 3-D hydrodynamic model prior to making a licensing decision would not make sense.

Comment 101: EPA and the Corps recommend the final EIS include a functional assessment of direct, indirect, and cumulative effects to waters at both upper reservoir sites from watershed changes.

Response: In the final EIS, we have provided such an assessment on the Decker Canyon site as we did for the Morrell Canyon site in the draft EIS.

Comment 102: The County of Orange questions where water collected by the proposed seepage collection systems would be discharged and how water from dam seepage would affect the water quality and habitat of the upper San Juan Creek watershed. It also asks under what circumstances water would be released to the San Juan Watershed in the event of dam failure, how much water would be released to the San Juan Watershed, and how would the release affect water quality. The Center for Biological Diversity also raises this concern. Further, the State Water Board questions where emergency releases from the upper reservoir would be discharged to and what would be the effect of releasing Lake Elsinore water into Morrell or Decker Canyons.

Response: The purpose of the seepage collection system is to collect natural seepage from the San Juan Creek within the footprint of the proposed upper reservoir and convey that water beyond the dam to keep it in the watershed. The co-applicants propose a liner system to prevent Lake Elsinore water from leaking into the San Juan Creek watershed. We discussed potential dam failures at the upper reservoir sites on page 3-32 of the draft EIS. We noted that dam failure analyses submitted in the license application were preliminary and that if licensed, a more detailed inflow design flood and dam break analysis would be developed in the final supporting design report prior to construction. The dam break analysis is described in detail on page E.6-43 through E.6-50 of the license application. Failure of any dams or dikes associated with the upper reservoirs would temporarily affect water quality and introduce considerable sediment into the San Juan Creek. However, the probability of dam failure is remote. Emergency overflows associated with the spillway would also discharge into the San Juan Creek watershed and temporarily introduce Lake Elsinore water into the watershed.

Comment 103: The Center for Biological Diversity states that the final EIS must include a more specific comprehensive monitoring plan, particularly with regard to water quality impacts to the San Juan Creek.

Response: The liner system proposed for the upper reservoir would prevent any water from seeping out of the upper reservoir to mix with waters in San Juan Creek under normal operating conditions; however, the EIS does recognize there is some risk of inter-basin transfer regardless of the preventive measures. Failure of any dams or dikes associated with the upper reservoirs would be considered outside normal operations and would temporarily affect water quality and introduce considerable sediment into the San Juan Creek. The co-applicants propose and we recommend the development and implementation of an upper reservoir water conduit monitoring program to assess the effects of the upper reservoir liner and seepage collection systems, shafts, and tunnel on groundwater levels and water quality.

Comment 104: Interior points out that the analysis in section 3.3.2.2 of the potential effects of operations of the proposed project on algae blooms in Lake Elsinore does not take into account the potential effect of algal decomposition on DO levels if the intake structure were designed to draw in water near the surface.

Response: We have augmented the discussion on the potential effects of the proposed operations on algae and the resulting increases on oxygen demand after algae die-off. We conclude that it would be unlikely that the water level and suction of the intake would be sufficient to draw significant amounts of algae into the intakes where pressure gradient could eliminate their ability to float causing them to die and sink to the bottom of the lake as suggested by the co-applicants.

Comment 105: The Santa Ana Water Board states that the draft EIS contains very little discussion of the effects on water quality and beneficial uses from the construction and operation of the high voltage power line that is part of the project. It requests that in the final EIS BMPs, non-point source pollution management measures, and other techniques to be employed to reduce effects on water quality standards from power line construction and operation be discussed.

Response: The effects of the construction of the transmission lines are detailed in section 3.3.1.2, *Environmental Consequences*, in *Geology and Soils* and succinctly stated with respect to water quality in section 3.3.2.2, *Environmental Consequences*, in *Water quality*. The co-applicants proposed and our recommended soil erosion control plan would use BMPs to control the effects of construction on water quality in the project vicinity. We recommend implementation of the soil erosion control plan and hazardous substances spill prevention and control plan over the term of any license issued for project.

Comment 106: EPA and the Corps recommend the final EIS include a description of the functions and values of the streams that could be affected by the construction of crossings for the transmission line access road, a discussion of the significance of the aquatic resources at risk from construction and operation of the transmission line, and an evaluation of less damaging alternatives to culverted crossings.

Response: We identify the drainages that would be crossed by the proposed and staff alternative transmission alignments. The co-applicants indicate that they would place transmission towers to avoid sensitive areas and riparian areas. Further, our recommended measures to conduct site-specific pre-construction surveys for specials plants and wildlife in sensitive areas and implement a vegetation control plan along with the co-applicants proposed soil erosion control plan would avoid effects on aquatic resources during the construction and operation of the transmission line. As tower placement and temporary access roads would have the potential to affect streams, culverted crossings, and sensitive areas, we recommend in the final EIS that the co-applicants prepare and implement a transmission tower placement plan in consultation with the USFS, CDFG and FWS.

Comment 107: Pacific Clay states that the cumulative effects analysis in the draft EIS for water resources is inadequate and only references the Santa Ana Integrated Watershed Plan and lists Congressional appropriations without going beyond general statements or perfunctory analysis.

Response: The cumulative effects analysis not only covers the Santa Ana Integrated Watershed Plan but also mentions the pending TMDL developed for Lake Elsinore and Canyon reservoir as well as the Joint Watershed Authority's Lake Level Stabilization and Enhancement Project. The cumulative effects analysis raises the most pertinent programs that could have additional effect on the water quality of Lake Elsinore and discloses the cumulative effect relative to the proposed project.

AQUATIC RESOURCES

Comment 108: Pacific Clay is critical of the analysis in the draft EIS regarding the effects of construction on fish habitats and populations. It states that transmission tower locations could affect fish populations through stream crossings and ground disturbing activities washing sediment into streams; however, these locations are not yet sited, measures are not specified in the draft EIS to prevent these effects, and affects to major drainages are not discussed. It also notes that the draft EIS does not suggest alternate approaches from rotenone poisoning in Lake Elsinore or discuss the consequences of this poisoning. Further, Pacific Clay questions the speculative conclusions about the effects of the intake/outlet in Lake Elsinore absent specific information on the location, depth, and distance from the shore.

Response: Measures to avoid potential effects to fish populations from ground disturbing activities from transmission tower placement are addressed on page 3-81 of the draft EIS. The co-applicants indicate that they would avoid placing towers in sensitive areas and riparian areas. Although exact tower locations have not yet been sited, implementation of established BMPs are commonly applied during construction activities and are typically effective at protecting stream resources if implemented properly. As noted in our response to Comment 106, tower placement and temporary access roads would have the potential to affect streams and sensitive areas and therefore we recommend in the final EIS that the co-applicants prepare and implement a transmission tower placement plan in consultation with the USFS, CDFG and FWS.

As discussed on page 3-84 of the draft EIS, rotenone poisoning would remove desirable game fish as well as undesirable carp from Lake Elsinore, and this measure is not supported by the Joint Watershed Authority Fisheries Management Plan. Current presence of carp in Lake Elsinore is not the result of the co-applicants' proposal, and therefore we do not recommend the co-applicants be responsible for the extirpation of carp from the lake by rotenone poisoning or any other means.

While we agree with Pacific Clay that the location, depth and distance from shore of the intakes are only conceptual, we respectfully disagree that the analysis for entrainment potential is inadequate for the EIS. In the draft EIS, we examined the likelihood for entrainment if the intakes were located near the shore or far out into the lake, and concluded that the likelihood of fish entrainment in the intakes was low. We also reviewed performance of several physical and behavioral barriers used at other projects or that are under development, and we conclude that implementation of such facilities is very expensive relative to the potential benefit to the fishery. Therefore, our staff recommendation is that the co-applicants monitor the intakes for entrainment losses during the first year and once every 5 years thereafter over the term of any new license. Based on the monitoring results, we recommend the co-applicants develop and implement, with Commission approval, measure to mitigate for any losses. Mitigation activities may include implementing measures such as those identified in the Fisheries Management Plan, including annually stocking desirable game fish that would lead to the establishment of a productive sport fish fishery in Lake Elsinore.

Comment 109: Linda and Martin Ridenour take issue with the statement in section 3.3.3.2 of the draft EIS that the Santa Rosa powerhouse would not be near a stream. They state that a USFS map shows a blue line (stream) in the vicinity of the proposed powerhouse.

Response: We have modified the final EIS to state that small streams are located on the Santa Rosa powerhouse site. The co-applicants proposed and our recommended soil erosion control plan would include measures to avoid impacts to the water quality in these streams.

Comment 110: CDFG states that the final EIS should address project effects on the arroyo chub (*Gila orcutti*), a species of special concern and the tidewater goby (*Eucyclogobius newberryi*), a federally threatened species and state species of concern from the reservoir's effects on water quality and the introduction of non-native species to the watershed. The State Water Board also is concerned about the potential introduction of exotic species (bass and sunfish) in Lake Elsinore being a threat to the upper reservoir's watershed if a spill or overflow releases adults or larvae of these species.

Response: A discussion of project effects on arroyo chub has been included in section 3.3.3.2 of the final EIS. Tidewater goby are not known to occur in the project area or watershed, the only reference to the presence of tidewater goby in the San Juan drainage is from an observation noted in 1939. Habitat for tidewater goby consists of brackish shallow tidal lagoons and lower stream reaches where the water is fairly still but not stagnant. Currently San Juan Creek does not provide habitat suitable for the tidewater goby (FR 65:69693), and San Juan Creek does not contain designated critical habitat for this species. Therefore we did not include a discussion of tidewater goby in the EIS.

See also response to Comment 102. The likelihood for a spill or overflow event is remote, and would be the result of a catastrophic event. Therefore the likelihood for adult fish to be introduced into the upper reaches is remote, and larvae of warmwater fish would not likely survive such an event. As stated on pg. 3-80 of the draft EIS, non-native species including bass and sunfish are already present in lower reaches of San Juan Creek. Surface water quality monitoring below the upper reservoir was proposed by the co-applicants and recommended by the USFS and staff and clarified requirements for a monitoring and remediation plan should fish from Lake Elsinore be introduced into San Juan Creek.

Comment 111: The city of Lake Elsinore recommends that an Aquatic Vegetative Management Plan for Lake Elsinore be developed and implemented to mitigate for the possible negative effects of lake-stabilization and sediment resuspension.

Response: The Final Fisheries Management Plan for Lake Elsinore developed for the Joint Watershed Authority contains measures to address establishment of stands of aquatic vegetation. However, such activities will not be successful until the number of carp, which feed on aquatic plants, in the lake is reduced. Also see our response to comment 112.

Comment 112: The city of Lake Elsinore states that the project may have a substantial negative environmental effect on achieving the goals of the Fisheries Management Plan and the state beneficial use designation. As such it recommends the following mitigation measures be implemented: (1) fund an intensive 2-year carp removal program by the city in the amount of $500,000 in lieu of the proposed "rotenone poisoning"; (2) fund improvements to sport fish spawning habitat in the large cove off the T-peninsula of the levee system based on the plans and specifications prepared by Wildlands Inc. for the Joint Watershed Authority in the amount of $500,000; (3) develop and fund improvements to approximately 60 acres of adjacent fry and fingerling nursery habitat in the southeast bay area in the amount of $1,500,000; (4) develop and conduct fish population surveys every 3 years on Lake Elsinore to assess the fishery and attainment of the goals of the Fisheries Management Plan, with sport fish stocking based on the results of the surveys and consultation with CDFG at a cost no less than $50,000 annually; and (5) immediately clean up any fish kills that occur during project construction, count the loss of sport fish, and replace the lost sport fish before the project is operational.

Response: We respectfully disagree that the operation of the proposed project would have substantial negative effects on achieving the goals of the Fish Management Plan and the state beneficial use designation. Management of fisheries resources in Lake Elsinore is the responsibility of the Joint Watershed Authority that developed the Fisheries Management Plan for Lake Elsinore to address agency priorities for manipulating the current composition of fish species as well as implementation of habitat

enhancement measures to restructure and improve the sport fishery in the lake. There are many elements of the Fisheries Management Plan, which is designed to be adaptive in order to respond to changes in the fishery over time that may occur as a direct result of actions described in the plan, or as an indirect result of other activities that affect fish resources in the lake.

The current state of the Lake Elsinore fishery, lack of aquatic vegetation, and presence of undesirable populations of carp in Lake Elsinore is unrelated to the proposed project construction and operations. Carp removal is a key element of the Fisheries Management Plan to restructure the fishery in the lake, and the measure is already being implemented through annual netting operations. Rotenone poisoning is not recommended as it would also remove desirable game fish from the lake. The habitat enhancement measures recommended by the city of Lake Elsinore do not appear to address potential project affects on the fishery, but are enhancement activities that are already planned. Our recommendation is that the co-applicants monitor for entrainment in year 1 and every 5 years thereafter over the term of any license issued for the project. Any contributions to the implementation of the Fisheries Management Plan, would depend on the results of the entrainment monitoring and would be tied to project-related fish mortality and impingement. The monitoring plan would be developed in consultation with the CDFG, FWS, the State Water Board and the Joint Watershed Authority.

Comment 113: Linda and Martin Ridenour request information about the fish stocking program including the frequency of fish stocking, the types of fish to be stocked, and the cost to Elsinore Valley MWD to do the stocking.

Response: The co-applicants propose and we recommend consultation with CDFG and FWS to support a sports fish stocking program in Lake Elsinore consistent with the Fisheries Management Plan for recreational angling. The details of this support would be determined in the event that the Commission issues a license for the project.

Comment 114: The Santa Ana Water Board indicates that the project may potentially affect the lake's fish population, especially larval fish or ichthyoplankton through entrainment and impingement. It states that although the draft EIS briefly discusses methods to reduce mortality to fish from project operations, the final EIS should provide more discussion on methods to be used to reduce fish and ichthyoplankton effects.

Response: Section 3.3.3.2 (pages 3-88 and 3-89) of the draft EIS discusses the known technologies currently available to prevent fish entrainment as well as anticipated effects of project operations on fish of various life-stages. In a report filed by the co-applicants, Anderson (2006) estimated potential entrainment losses of ichthyoplankton, zooplankton, and phytoplankton from operation of the project to be 40 to 100 percent, 7 to 24.8 percent, and 1.1 to 4 percent, respectively, based on specific operating scenarios and generalized modeling assumptions. Anderson (2006) also speculated on the effectiveness of a filter-fabric-curtain to prevent entrainment mortality. The co-applicants suggested but did not propose an aquatic filter barrier system might be employed to prevent entrainment of fish, fish eggs and larvae, however such systems were designed for much smaller flow rates and have not been tested for flows as high as 1967 cfs for each intake, as is proposed for Lake Elsinore and we do not recommend such a system in Lake Elsinore.

Comment 115: The State Water Board states that the proposed 1-year entrainment monitoring program may not be long enough to evaluate the potential effects on the Lake Elsinore fishery.

Response: We agree with the State Water Board and have revised our staff recommendation to include monitoring for entrainment losses once every 5 years over the term of any license issued because of the

structure and composition of the fisheries is expected to change as a result of implementation of the Fisheries Management Plan.

Comment 116: The Friends of the Forest comments that the draft EIS does not provide much information about the littoral zone of Lake Elsinore. It points out that this is the area of the lake that would be most affected by the proposed project operation and state that biological studies must be completed. The State Water Board and the Center for Biological Diversity also states that the final EIS needs to address the consequences of lake fluctuation and the exposure of near-shore littoral habitats on game fish spawning habitat and other wildlife habitat.

Response: We have added text to section 3.3.4.2 to provide further information regarding the effects of lake fluctuations on wildlife habitat in the fluctuation zone. Current seasonal and annual lake level fluctuations in Lake Elsinore contribute to the lack of vegetation on the shore and the lack of submerged aquatic vegetation. The Joint Watershed Authority concluded that the lack of floating or submerged aquatic plants results from several factors in addition to the lake level fluctuations, including limited availability of shoreline sediments for rooting, shading by dense algal populations; turbidity caused by several mechanisms, and constant foraging by carp (Joint Watershed Authority, 2005). Limiting lake level fluctuations to 1 foot on a daily basis, and 1.7 feet on a weekly basis as proposed by the co-applicants would provide a more stable regime of constant inundation and may contribute to the establishment of rooted shallow-water vegetation that provides spawning, rearing, foraging, and cover from predators. Anderson (2006) estimated the fluctuations in shoreline exposure would not result in increased turbidity, since natural wave action would likely prevent fine material from accumulating near the active shoreline.

Comment 117: Pacific Clay states that the cumulative effects analysis in the draft EIS for fisheries is inadequate and only provides a project-specific discussion of the effects of project operations on the city of Lake Elsinore's fishery programs. It states that this is a violation of NEPA because it fails to provide a listing of related actions and never addresses project effects in combination with those of other past, present, and reasonably foreseeable future actions within the San Juan River Basin.

Response: We have expanded the cumulative effects section in regards to fisheries to include reconfiguration of the Back Basin Wetlands as part of the Lake Elsinore Stabilization and Enhancement Project and the proposed Special Area Management Plan for the San Juan Creek and Western San Mateo watersheds.

TERRESTRIAL RESOURCES

Comment 118: The Orange County Chapter of the California Native Plant Society states that the EIS should include a large-scale map or overlay that clarifies what percentage of the total southern coast live oak forest and other vegetation types would be removed at the sites. Furthermore, CDFG states that it is not possible to determine the existence of significant adverse effects because the draft EIS did not contain a detailed description or map of existing biological resources and habitat value within the project area, specifically the Lion's Springs and Morrell canyon sites. EPA recommends the final EIS include detailed maps of both the Decker and Morrell canyon reservoir sites showing plant communities, water and wetland boundaries, riparian areas, and acreages for each. Linda and Martin Ridenour also comment that information about vegetation that would be disturbed is insufficient.

Response: As an attachment to their April, 24, 2006, filing, the co-applicants submitted a report discussing a delineation of wetlands and waters at the Morrell and Decker Canyon sites that was conducted by Michael Brandman Associated (MBA) in January, 2006. We have overlaid the reservoir footprint for each alternative on an aerial photo that was included in the delineation report, to provide

additional detail about waters of the U.S. and waters of the state that occur on each site, as shown in figure 14 of the final EIS. Survey results are summarized in section 3.3.4.2. We conclude that the level of detail provided in the final EIS is sufficient to serve as the basis for comparing the biological effects of the staff alternative with those that would occur under the co-applicants' proposal. Based on this comparison, we conclude that the staff alternative would be the least environmentally damaging action alternative. Additional information, including all the technical studies filed by the co-applicants, with attached aerial photos, site drawings, topographic maps, cover type maps, jurisdictional wetland delineations, functions and values assessments, field notes, and other exhibits, are available to the public on the Commission's eLibrary or by request from the co-applicants.

Comment 119: SDG&E requests a clarification concerning the type of vegetation cover (disturbed or chaparral) at the southern substation site given that the information in table 15 conflicts with the table note.

Response: We have added headers to table 15 to clarify that the proposed southern substation is currently disturbed, and that the alternative southern substation is characterized by chaparral.

Comment 120: CDFG notes that an accurate statement of the potential for impacts on sensitive species cannot be made because the final alignments of the transmission line and access roads have not been established. CDFG comments that the Department would require biological surveys for all sensitive and endangered species in the development footprint, according to the policies of the Multi-Species Habitat Conservation Plan (Multi-Species HCP). CDFG also notes that the California black walnut is considered locally and regionally sensitive, is covered by the Multi-Species HCP, and would be affected by the project.

Response: As discussed in sections 2.4.3.2, 5.2.6 and 5.2.7, we recommend pre-construction surveys for special status species in any areas that have not yet been covered. We have added the California black walnut to table 13, and modified tables 13 and 14 to indicate species for which focused surveys would be needed, according to the Multi-Species HCP.

Comment 121: Nevada Hydro states that no factual basis exists to impose a compensation requirement for those plant communities not recognized by the California Natural Diversity Database as high priority habitats. Nevada Hydro states that coastal sage scrub has not been identified as communities known or believed to be of high priority. However, although not required, the co-applicants would replace coastal sage scrub at a 1:1 ratio and requests that the proposed measure as described on page 2-14 of the draft EIS be corrected to reflect the 1:1 replacement ratio for coastal sage scrub. Nevada Hydro states that the appropriate replacement ratio for southern coast live oak riparian forest, southern sycamore-alder riparian forest, and southern willow scrub, should these habitats types be present with the area of physical disturbance, is 2:1.

Response: We have corrected the text on page 2-14 to reflect the co-applicants' proposal to replace coastal sage scrub at a 1:1 ratio and we have included this lower ratio in the staff alternative in the final EIS. The staff alternative also includes compensation for the loss of chaparral and non-native grasslands, at a 1:1 mitigation ratio because many special status species use non-native grasslands, including white-tailed kite, burrowing owl, loggerhead shrike, southern California rufous-crowned sparrow, northwestern San Diego pocket mouse and Stephens' kangaroo rat. Chaparral habitat for these species would be reduced as a result of project construction, unless the co-applicants provide compensation.

Comment 122: The Center for Biological Diversity comments that coastal sage scrub is also a rare plant community according to California Natural Diversity Data Base (CNDDB) and should be addressed in the final EIS (on page 3-92). It also comments that the draft EIS did not adequately describe the biological

resources of the project area and state that sticky Dudley, Parry's tetracoccus, and Robinson's pepper-grass are additional List 1B species that occur in the San Juan Creek area and should be included in the final EIS.

Response: The Center for Biological Diversity references CNDDB (2005) as the basis for stating that coastal sage scrub is a rare plant community. However, we could not find this reference in the *Literature Cited* section of the Center for Biological Diversity letter. In preparing the draft EIS, we used the *List of Terrestrial Vegetation Natural Communities Recognized by the California Natural Diversity Database, September 2003 Edition*, as posted on the CNDDB web site. The 2003 edition is still posted on the web site, as of August 17, 2006, and we assume this is the most current version. This version does not indicate that CNDDB considers coastal sage scrub to be a rare plant community. Regardless of the "official" status of the community, however, the draft EIS does address its special importance, and we recommend that the co-applicants mitigate for project effects (please see response to Comment 124). We did not conduct an in-depth analysis of any resources in San Juan Creek because we consider the risk of a dam break to be extremely low.

Comment 123: Riverside County states that several species' habitat assessments or focused surveys were not included in the draft EIS, specifically some of the narrow endemic and Criteria Area plant species required by the Western Riverside County Multi-Species HCP. A thorough analysis of effects on riverine and riparian habitats would be needed.

Response: We have modified tables 13 and 14 to identify which species are narrow endemics, and have added Criteria Area species. We anticipate that additional plant surveys, burrowing owl surveys (if needed) and delineations of wetlands and waters that would be conducted prior to project construction would provide the information the County would need to evaluate project consistency with the Multi-Species HCP. We have specified in section 5.2.6 that the co-applicants should consider these species, as well as others previously identified in the document, during planning for additional, focused surveys in areas that have not yet been covered (e.g., the final placement of transmission towers and temporary access roads) and that may be affected by project construction or operation. We have described the amount of temporary and permanent disturbance to habitats that support these species.

Comment 124: CDFG states that the project occurs within the Western Riverside County Multi-Species HCP and CDFG will review the project for compliance with the plan. It states that a future habitat management plan for the project should include an in-depth analysis of the project's effects on the Multi-Species HCP and demonstrate how the project is consistent with the Multi-Species HCP.

Response: We agree that the habitat mitigation plan should address project effects on species covered under the Multi-Species HCP and support CDFG's intention to review the LEAPS Project for compliance with the plan.

Comment 125: The Center for Biological Diversity also cites the lack of analysis of the potential effects of the co-applicants' proposal to not clear vegetation under transmission lines as inadequate. It is concerned that failure to clear out vegetation under the transmission lines would increase the fire hazard in the project area.

Response: The co-applicants do not propose to clear vegetation under the transmission line, but fuel management in the future may require manipulation to reduce the risk of fire. Methods selected for fuel management would be developed in consultation with the USFS and would depend on site-specific factors (e.g., vegetation type, slope, aspect, access), and could include grazing, prescribed fire, or mechanical means to create and maintain firebreaks. Existing firebreaks that intersect the proposed alignment would also be maintained, as needed and as specified by the USFS. The increased risk of fire

that would be associated with uncontrolled public access and weed invasion highlights the importance of effective road and weed management. The objective is to eliminate all man caused fires within the project area and to take prompt, aggressive action on all fires in the vicinity. Our recommended hazardous vegetative fuel treatment plan as specified by the USFS would set forth protocols for the treatment of vegetation in the vicinity of the transmission lines.

Comment 126: Pacific Clay and Linda and Martin Ridenour state that the analysis of the construction effects on special status plants is inadequate because several areas were not included in survey efforts, mesa horkelia was not included in surveys, the effects of the transmission line are unknown because it has not been sited, no rare plant surveys have been conducted for the staff alternative, and maps do not provide a sufficient level of detail. They state that because of these reasons the mitigation proposed is not effective. The Ridenours would like to see all the plans that relate to the protection of rare plant species.

Response: As mentioned in section 3.3.4.2, we recognize that site-specific pre-construction surveys would be needed for special status plants in any areas that have not yet been covered or that have not been thoroughly covered during previous surveys. We have added text to section 5.2.6 to clarify that data obtained through additional surveys should be used to avoid, minimize or mitigate adverse effects, first by locating transmission towers, roads and other project features away from any rare plant populations that may be present. We have added text to this section to specify that the co-applicants should consult with the resource management agencies and other stakeholders to develop a survey plan and then to develop mitigation plan, before submitting finalized reports and plans to the Commission.

Comment 127: The Center for Biological Diversity points to a recent declaration by USFS that invasive species of weeds is one of the four greatest threats to National Forest System lands and comments that the EIS needs to include a description of weed communities in the project area as well as identification of higher protective standards for areas without invasive weed problems. It criticizes the co-applicants' proposal to develop a weed control plan pursuant to the new Cleveland National Forest Land Management Plan because that plan only provides general guidance for the development of site specific plans.

Response: The Center for Biological Diversity letter notes that non-native species are widespread in the South Coast Bioregion of California. Although only 12 weeds were documented during the co-applicants' plant surveys, it is very likely that most, if not all, of the 42 non-native invasive species known to occur in the project vicinity are present in areas that would be affected by the project. On one hand, it would be advantageous to design the project to avoid areas that do not currently support weed species, in order to reduce the threat of introduction. On the other hand, it would be beneficial to design the project to avoid sites that support weed species, in order to reduce the threat of spreading them to un-infested areas. Neither scenario is likely possible, given that project features must also be located to avoid or minimize impacts on steep slopes; streams and riparian habitats; special status plants, plant communities, and animals; listed species; high quality recreation sites, sensitive viewsheds, and other important resources. This situation points out the importance of weed management, without any need for additional detail about existing conditions.

We recognize that the Land Management Plan was developed at a general level to address almost 567,000 acres of lands within the Cleveland National Forest, and was not intended to serve as a blueprint for the development of site-specific weed management plans. Many weed management handbooks are readily available that could serve as a blueprint for developing a plan to manage weeds in lands affected by the LEAPS Project. With their site-specific knowledge, we conclude that selection of any particular document as a model for developing a plan is best left to the co-applicants, in consultation with the resource management agencies and other stakeholders. In any case, because some project features would be located on National Forest System lands, we recommend that the co-applicants consult with the USFS

to develop a plan that is consistent with the Land Management Plan goals, objectives, and design criteria. We have added text in section 5.2.6 to clarify the elements that should be included in a weed management plan for the project area, including National Forest System and non-National Forest System lands.

Comment 128: Bruce Campbell comments on the lack of information about the potential effects of the use of toxic and hazardous materials during the construction and operation of the project and requests that a supplemental or new draft EIS be issued that addresses these concerns. He comments that non-native plant species would spread in the area because of the construction of the transmission lines, increased use of OHVs, and transmission line maintenance activities. He requests more information in the draft EIS about the maintenance activities including what herbicides would be used, if toxicological profiles would be presented in a supplement or new draft EIS, and whether hazardous Material Safety Data Sheets will be completed and made available to the public. He asks if this information about herbicides would be made available to the public in both English and Spanish.

Response: For the most part, the transmission line would traverse chaparral and grassland vegetation that does not reach a height that would interfere with project operation, and there would be no need to manage any vegetation except weeds. If taller vegetation is present and would interfere with system reliability or safety, it could be removed by periodic cutting or trimming. We anticipate that herbicides could be used for spot treatment of certain weed species. However, there are many alternatives to herbicides, and non-chemical treatments are almost always preferable (in terms of safety and environmental stewardship), unless other attempts at control have failed, and the risk of damage caused by weeds is greater than the risk of damage caused by an herbicide (Tu et al., 2001).

As discussed in our response to comment 127, we have added text to section 5.2.6 to clarify our recommendations for development of a weed management plan. The plan should include an evaluation of all available methods of weed control for target species, a comparison of their costs and benefits, and finally, selection of the most appropriate treatment. If an herbicide is to be applied, the co-applicants would be required to comply with federal, state and local regulations for proper use and application.

Comment 129: The Center for Biological Diversity indicates that the draft EIS fails to consider native willows, tule, and cattails at Lake Elsinore as potentially important riparian habitat and requests that information about stands of these species and wildlife use of these habitats be included in the final EIS. Linda and Martin Ridenour also state that information about wetlands associated with Lake Elsinore is insufficient.

Response: We have added text in section 3.3.4.2 to recognize that even small and scattered patches of native riparian vegetation can provide important habitat for wildlife. We have added some anecdotal information about birds that use Lake Elsinore, reflecting comments supplied by the city of Lake Elsinore. We also note that implementation of the Lake Elsinore Stabilization and Enhancement Project combined with proposed operations, would be expected to result in a stable upper shoreline at 1,241.7 feet msl, with a variable fluctuation zone that covers about 79 acres 5 days a week and an additional 55 acres during the weekend. We would expect that additional shoreline vegetation and possible new wetlands that could support nesting shorebirds would develop above elevation 1,241.7 feet msl. Given this likelihood, we include a monitoring plan for shorebirds in our staff alternative.

Comment 130: Nevada Hydro states that the co-applicants disagree with the statement on page 3-129 of the draft EIS that wetland delineations would be needed to evaluate and quantify effects. Nevada Hydro comments that the proposed LEAPS Project would not alter the operational parameters established under the Lake Elsinore Stabilization and Enhancement Project but would provide a revenue source that would facilitate the implementation of the plan. It indicates that seasonal variations are substantially greater than the limits outlined in the adopted plan, which has gone through environmental review, and it requests that

measures in the staff alternative for wetland delineations and habitat mitigation and monitoring for Lake Elsinore be eliminated from the final EIS.

Response: We agree that stabilizing year-to-year and seasonal lake elevations, while allowing daily and weekly fluctuations, may have little effect on existing wetlands around Lake Elsinore, if any are present. Native species that persist around the shoreline, such as willows, tule and cattails, are tolerant of seasonal water level fluctuations that occur in natural systems throughout the semi-arid west and these species would likely tolerate daily fluctuations of 1 foot. Fluctuations limited to 1 foot and occurring within a 24-hour time-frame, as proposed, should allow for soils to remain moist and these species would likely persist. Operational effects on wetlands that may be associated with Lake Elsinore would likely be minor. We do not recommend in the EIS any additional wetland delineations other than those proposed by the co-applicants as needed after the final placement of project facilities.

Comment 131: CDFG recommends that all areas supporting hydrophytic cover be mapped in order to assess the potential effects on wetlands from the proposed project. It also recommends a CDFG-approved wetland restoration/protection plan, including a means of replacing or protecting the hydrologic conditions, which contribute to the existing wetlands. CDFG states that its policy has no net loss of wetlands and that buffers between existing or proposed development and existing wetlands or wetland compensation sites should be included in any mitigation plan. The Corps, the State Water Board, and Pacific Clay also state that wetland delineations need to occur to determine potential project effects.

Response: As an attachment to their April 24, 2006, comments on the draft EIS, the co-applicants filed a delineation of jurisdictional waters and wetlands at the Morrell and Decker Canyon sites and an assessment of functions and values, using the California Rapid Assessment Method (CRAM). We have included exhibit 4 of the delineation report as figure 14 in the final EIS. We have revised and added text in section 3.3.4.2 to reflect information contained in this report. As noted in section 3.3.4.2, delineation of wetlands associated with Lake Elsinore would be needed, as well, to meet federal and state permitting requirements.

Comment 132: The Orange County Chapter of the California Native Plant Society indicates that although the draft EIS properly states that the Lion Spring wetland fulfills important habitat functions that would lost if the project is built, it is not clear if there is an intention to replace the habitat function with a new wetland formed by the upstream and spring water that are proposed to be diverted under the reservoir's geofabric liner.

Response: A settling pond may be needed to ensure that clean water is returned to the creek downstream of the reservoir if Morrell Canyon is selected as the site of the upper reservoir. Returning flows to the creek would maintain natural processes downstream of the dam. However, we anticipate that replacement of habitat functions associated with Lion Spring itself would not be feasible, because of the complex geology and hydrology that characterize this site. The staff alternative includes an upper reservoir at the Decker Canyon location, which would eliminate the effect on Lion Spring.

Comment 133: The EPA and the Corps state that information regarding the need for section 404 compliance for wetland effects should have been disclosed for consideration in the draft EIS. Additionally, EPA states that it considers this project and the TE/VS 500-kilovolt Interconnect Project to be separate projects in regard to section 404 compliance. SDG&E also questions whether the south substation would require a wetland permit for access or pad construction.

Response: In general, Commission staff is not in a position to speculate about the permit requirements other agencies may impose.

Comment 134: Nevada Hydro provides a report containing the findings of jurisdictional wetland delineations at the Morrell Canyon and Decker Canyon upper reservation sites and requests that the descriptions of wetlands that might be affected by the construction of an upper reservoir be revised to reflect the findings of the wetland delineation report.

Response: We appreciate the additional information and have included it in the document.

Comment 135: EPA states that the draft EIS should have included a conceptual description of what is being considered as compensatory mitigation to offset unavoidable effects to waters of the US, including wetlands at both the Decker and Morrell canyon reservoir sites. It states that compensatory mitigation should include restoration or enhancement of waters along with the acquisition/preservation of other waters. It recommends that the final EIS analyze an alternative that combines the Decker Canyon site with a minimal functional transmission line that avoids waters of the United States to the maximum extent possible. EPA recommends the final EIS indicate how riparian habitat losses would be mitigated for under the staff alternative.

Response: We do not include a conceptual description of compensatory mitigation, because we do not have information about opportunities/resource needs that may exist within the upper San Juan Creek basin. However, we have added text discussing mitigation priorities to sections 3.3.4.2 and 5.2.6.

Comment 136: CDFG states that the draft EIS did not address its comments from the October 21, 2004, letter pertaining to the loss of approximately 100 acres of mature oak woodlands associated with Lion's springs and a rare perennial spring.

Response: The referenced letter was sent to the co-applicants only and was not filed with the Commission until April 2006; therefore, CDFG comments were not considered in the draft EIS; however, we now acknowledge CDFG's October 21, 2004, letter and note that the draft EIS did consider the potential effects of the project on the mature oak woodlands associated with Lion Spring at the proposed upper reservoir location in Morrell Canyon.

Comment 137: Nevada Hydro points out that the exact acreages for replacement ratios remain subject to further refinement based on site selection and final grading plans. Further, Nevada Hydro states that either the 3:1 or the 5:1 replacement ratio for oak woodlands would appear to be beyond the ability of the co-applicants to achieve. Nevada Hydro requests that the final EIS reference California Senate Bill 1334 which established section 21083.4 of the Public Resource Code and specifies oak woodland mitigation under CEQA and maintains the proposed ratio of 3:1 for replacement of oak woodlands.

Response: As noted in section 3.3.4.3, we considered California Senate Bill 1334 establishing section 21083.4 of the Public Resource Code in making our recommendations regarding an appropriate mitigation ratio. In section 3.3.4.2, we identified the advantages and disadvantages of various approaches to mitigation, including on-site planting, on-site transplanting, contribution to a mitigation banks, and purchase of off-site lands or conservation easements. We concluded that the first two options would not likely be successful, and that the third option might not allow the co-applicants, resource management agencies and other stakeholders to choose site(s) for mitigation that would provide the highest local benefits. For this reason, we recommended purchase and protection of existing oak woodlands at the 1:1 ratio recommended by Interior and specified by USFS.

Comment 138: The Orange County Chapter of the California Native Plant Society states that the proposed 2:1 oak mitigation is inadequate and that oaks should be mitigated at 5:1. SDG&E requests further discussion of why the co-applicants propose a 2:1 ratio rather than the 5:1 ratio recommended by the USFS as well as discussion of CDFG's permitting requirements under section 1600 of the Fish and

Game Code for riparian and oak woodland impacts. CDFG states that the proposed 5:1 ratio mitigation for the loss of oak woodland is not adequate, and instead should be 10:1, which is the CDFG standard for removal of mature coastal live oak trees. Additionally, CDFG states that the spacing of the replacement trees should be 20 feet minimum and should be monitored, nurtured, and protected within the drip line so they survive a minimum of 5 years. Off-site mitigation alternatives should be included in detail in the EIS and should be agreed upon by CDFG. The Center for Biological Diversity also recommends a higher mitigation ratio as well as information about where and how the mitigation would occur.

Response: The staff alternative now includes a 1:1 habitat mitigation replacement ratio for oak woodlands and an equivalency analysis to ensure that the replacement habitat is of equal value consistent with Interior's recommendations and a priority for replacement with the Cleveland National Forest, consist with measures specified by the USFS, instead of the 5:1 habitat mitigation replacement ratio we recommended in the draft EIS. We consider CDFG's recommended ratio of 10:1 to be excessive, because off-site mitigation will involve mature oak woodlands that currently provide high-quality habitat for wildlife, and there would be no time gap between the impact (project construction) and functional mitigation, as would be the case if oaks were planted on-site. We have not identified off-site options for mitigation, but have added text to section 5.2.6 to outline a general order of priority, and clarify that we recommend the co-applicants consult with the resource management agencies and other stakeholders to identify appropriate sites.

Comment 139: The Orange County Chapter of the California Native Plant Society states that the draft EIS does not indicate the range of dbh above 8" or analyze dbh measurements to indicate age-classes, which would help determine the habitat functions of woodland oak communities that would need to be replaced by mitigation (page 3-130).

Response: Coast live oak woodlands in Morrell Canyon contain a variety of age classes; trees range in size from 2 to at least 24 inches diameter at breast height (dbh), with most individuals in the 8 to 12-inch range. For this reason, we are recommending the co-applicants purchase and protect mature coast live oak woodlands as mitigation for habitat losses at Morrell or Decker Canyon.

Comment 140: CDFG states that mitigation for the loss of biological resources should include both temporary and permanent effects. It believes that the draft EIS understates the habitat values of Morrell Canyon and Lion's Spring oak woodland and that the loss of these resources to wildlife in the Cleveland National Forest and surrounding wilderness area would be a significant effect. As such, CDFG recommends that the co-applicants submit additional environmental analysis of the reservoir location and its effect on wildlife habitat function and value and submit a detailed Mitigation and Monitoring Plan to CDFG for approval. Additionally, CDFG states that any management plans developed as a result of the project should include CDFG input and approval.

Response: The information filed with the Commission to date serves as an adequate basis for our conclusion that project effects on biological resources in Morrell Canyon (including Lion Spring) would be substantial. We have added text to section 5.2.6 to clarify that we are recommending the co-applicants consult with the resource management agencies (including CDFG) to develop a detailed habitat mitigation and monitoring plan.

Comment 141: The Center for Biological Diversity states that the occurrence in the planning area and potential spread of sudden oak death syndrome that affects oak woodlands in coastal California must be addressed in the final EIS.

Response: Our review of maps posted on the California Oak Mortality Task Force website in 2005 indicated that *Phytophthora ramorum* had not been reported south of Monterey. A review of the July, 2006, maps shows the same result (http://kellylab.berkeley.edu/SODmonitoring/maps/PDF/SODCalifornia07-25-06page.pdf). Based on the Task Force's evaluation, we conclude that there is a low risk of infection in western Riverside County and in Orange and San Diego counties (http://kellylab.berkeley.edu/SODmonitoring/maps/PDF/state_risk_05a_avg.pdf).

Comment 142: The Center for Biological Diversity comments that the draft EIS lacks any meaningful information on how habitat loss at Morrell Canyon would affect special-status wildlife populations. It also comments that there is no meaningful or quantitative analysis of edge effects on wildlife from the loss of Morrell Canyon.

Response: Section 3.3.4.2 concludes that project construction and operation would reduce habitat quantity and quality for special status wildlife populations in the area. We agree the draft EIS does not contain a detailed analysis of effects at the population level, but clearly, the analysis is sufficient to compare the effects of the proposed action and the staff alternative, in terms of acres and types of habitat that would be affected. We conclude that special status wildlife species that use those habitats would be adversely affected by the loss of those habitats, in direct relation to the acreage of each habitat type that is lost to construction. Thus, acres and types of habitat that would be affected serve as an adequate indicator of impacts on wildlife. Given similar reservoir configurations under both alternatives, the extent of edge effects would depend primarily on acreage, so again, the analysis is adequate to compare the effects of the proposed action and the staff alternative. Based on these relationships, no additional information is necessary to conclude that loss of Lion Spring (a unique habitat feature) and 20 acres of mature oak woodlands at Morrell Canyon would have a greater impact on wildlife, including special status species, than loss of 5 acres of mature oak woodland at Decker Canyon, and that the no-action alternative would have the least impact.

Comment 143: Pacific Clay is critical of the special status wildlife analysis because survey data is out of date with none more recent than 1998 and mitigation measures are not consistent with the Western Riverside County Multi-Species HCP or the Cleveland National Forest Land Management Plan.

Response: We have added text to section 3.3.4.1 to clarify that the co-applicants conducted general biological surveys in the project area in 2001and noted the presence of any special status species observed during other field efforts. Table 16 shows federally listed special status species for which focused surveys were conducted between 2001 and 2005. We anticipate that mitigation measures would be consistent with the Multi-Species HCP in calling for pre-construction surveys, where needed, and recommending compensation ratios that exceed the Multi-Species HCP minimum of 1:1.

Comment 144: CDFG states that the EIS should address project effects on the southwestern pond turtle (*Emy marmorata pallida*), a state species of special concern from the reservoir's effects on water quality and the introduction of non-native species to the watershed.

Response: Only a dam failure at the upper reservoir could adversely affect the southwestern pond turtle. We have not conducted an in-depth analysis of any aquatic resources in San Juan Creek including the southwestern pond turtle, because the risk of a dam failure is very small.

Comment 145: Scott Werner comments that the draft EIS does not provide specifics on the immediate and cumulative effects to many species, especially several CDFG-listed California Species of Concern including the Coast-horned lizard, and Southern California rufous-crowned sparrow, and Bell's sage sparrow.

Response: We used the lists provided in the license application and the co-applicants' responses to additional information requests as the basis for describing special status species that could occur in the project area. Some special status species, such as Bell's sage sparrow, may have been omitted from the lists. We have added the California Species of Special Concern that you text to section 3.3.4.2 and 3.3.4.3 to indicate that other special status species may also occur, and would also be adversely affected by the loss of habitat types they use and by the increased risk of disturbance, both directly and cumulatively.

Comment 146: The Center for Biological Diversity comments that the draft EIS cannot be used to satisfy the NEPA requirements for the USFS decision on the proposed project because it does not present any population data on Management Indicator Species, assuming that the Cleveland National Forest is currently operating under the 1982 regulations.

Response: We used information taken from the Land Management Plan to provide general population data for the Trabuco Ranger District, Cleveland National Forest or the Santa Ana Mountains, wherever possible (see section 3.3.4.1), supplemented with results of MBA's project-specific surveys for the California spotted owl and arroyo toad. Although no detailed data are available about management indicator species (MIS) populations, we find that the project would adversely affect MIS by removing habitat, and, for this reason, we recommend substantial mitigation if either of the action alternatives is implemented.

Comment 147: Riverside County states that the location description of the project is too vague to accurately determine the potential effects of the project on reserve assembly; however, it is likely to be within cell criteria areas and has the potential to affect reserves and/or corridors including Core Reserve Area 1, the proposed extension of Core Area 2, and proposed Constrained Linkages 1, 2, and 9.

Response: We agree with your assessment that the project has the potential to affect the reserves and corridors mentioned.

Comment 148: Nevada Hydro cites numerous conclusions in the draft EIS that suggest that the project would have little effect on nesting shorebirds and requests that Interior's 10(j) recommendation for a monitoring and remediation plan to eliminate or reduce impacts to nesting shorebirds be deleted from the staff alternative and no conditions or measures be imposed with regard to shorebirds.

Response: We respectfully disagree. The draft EIS concluded that while limited in size, small areas of suitable habitat that provides forage and cover for waterfowl, wading birds, and songbirds could be affected by project operations. We also concluded that the more stable water level would promote the development of emergent herbaceous plants within the 79-acre fluctuation zone and additional riparian vegetation may establish along the shoreline above the fluctuation zone providing additional suitable habitat for a variety of ducks, wading birds, and songbirds. Further, in comments on the draft EIS, the city of Lake Elsinore provided more information on water-associated bird species that currently use undisturbed shorelines of Lake Elsinore. Our recommended nesting shorebird plan would monitor project-related effects on these species.

Comment 149: The city of Lake Elsinore states that the draft EIS seriously underestimates the lake's avian resources and provides additional information of bird use of the lake. It states that to mitigate for the potential negative effects of the project on great blue heron and egrets, the co-applicants should be required to provide educational outreach to the general public by purchasing the nesting sites of these wading birds in both the Four Corners and Rome Hill areas of Lake Elsinore. The Center for Biological Diversity comments that the draft EIS presents no data about the shorebirds, waterfowl, and riparian birds

that use Lake Elsinore and relies on speculation to downplay potential impacts to avian species that use the lake. It also comments that the draft EIS does not provide an analysis of potential impacts to migratory birds sufficient to allow the reader to compare the various transmission route corridors relative to which alignment would best avoid such impacts. Linda and Martin Ridenour also comment that information provided by MBA is flawed and inadequate to serve as a basis for analysis of potential effects on birds at Lake Elsinore and within the Pacific flyway.

Response: We have added text to sections 3.3.4 and 3.3.5 reflecting information the city of Lake Elsinore provided about bird species observed at Lake Elsinore. However, we have not included the city's recommendation to include purchase of land in the Rome Hill and Four Corners areas to the staff alternative, because we conclude it is very unlikely that the project would affect nesting habitat for great blue herons or egrets. Great blue herons and egrets nest in trees that are large enough to support their sizable nests, in fairly close proximity to foraging areas. The co-applicants do not propose to remove any mature trees along the shoreline, and lake fluctuations should not affect existing trees. For these reasons, there should be no project effects on nesting habitat for these two species.

Although the level of detail provided in the EIS is adequate to identify major areas of concern, we agree that monitoring will be needed to identify high-risk crossings along the selected alignment. As discussed in section 5.2.6, we are recommending the co-applicants implement measures to minimize the risk of collision. Consistent with Avian Power Line Interaction Committee (APLIC) and FWS guidelines for avian protection plans, the co-applicants would monitor the effectiveness of any measures that are implemented, and use the results to design and implement further protective measures if any are needed.

Comment 150: The city of Lake Elsinore states that the fluctuating water levels caused by the project may have a substantial negative effect on shoreline birds and recommend the co-applicants mitigate for these effects by acquiring substantial shoreline property to restore, enhance, and protect the seasonal shoreline nesting sites.

Response: The city's comment letter indicates that several bird species that do not require emergent or woody riparian vegetation for nesting (including black-necked stilts, avocets, and killdeer) are known to breed along the Lake Elsinore shoreline, and that western snowy plover nested there at one time. This information highlights the importance of implementing a monitoring and remediation plan to determine if additional mitigation measures might be warranted. However, as pointed out in section 3.3.4.2, land use and land management practices (construction, soil disturbance, mowing, fertilizing, herbicide use, domestic pets) are likely to have as much or more influence on shorebird use of Lake Elsinore than project operations.

Comment 151: Pacific Clay states that the final EIS should include analysis of an entirely underground transmission option that would avoid potential bird collisions.

Response: The cost of an entirely underground transmission line option would be an additional $320 million or about $10 million per mile for about 32 miles. While such an option would prevent many of the terrestrial resource impacts discussed in the analysis, costs would be prohibitive.

Comment 152: The Fernandez Parties, the Center for Biological Diversity, and Pacific Clay indicate that the draft EIS was missing information regarding the wetlands, wildlife habitat, and rare animal and plant species located in the areas to be affected by the project, and as such the analysis is not adequate.

Response: The analysis is adequate for determining the relative extent of impacts likely to occur under the proposed action and the staff alternative, and to compare these with the no-action alternative. Further detailed, site-specific analysis would be needed in finalizing the location of project facilities, including

access roads, in order to avoid and minimize project effects and design appropriate mitigation where necessary.

Comment 153: Linda and Martin Ridenour comment that the effects of an increase in mosquito production at the 86 acre margin of Lake Elsinore were not addressed in the draft EIS. They question the co-applicants' statements about no effect from mosquito and ask if any Vector Control has commented on the co-applicants' statements.

Response: We have added text to section 3.3.4.2 of the final EIS to clarify why we conclude that project operation would not affect mosquito production in Lake Elsinore. We are not aware of any Vector Control comments.

Comment 154: Pacific Clay states that the cumulative effects analysis in the draft EIS for wetlands and riparian habitat is inadequate because it does not identify habitat locations, related actions, or quantify the project's incremental effect when taken in conjunction with the effects of related actions, it does not analyze effects to each habitat separately, and it does not quantify the cumulative risk if the project were to go forwards.

Response: We have added more specific information about project cumulative effects to wetland and riparian habitat the cumulative effects discussion in section 3.3.4.3.

THREATENED AND ENDANGERED SPECIES

Comment 155: CDFG states that the draft EIS does not address its concerns regarding steelhead trout and the habitat function and value of the lower San Juan Creek, as found in its October 21, 2004 letter.

Response: As noted, the referenced letter was sent to the co-applicants only and was not filed with the Commission until April 2006, therefore it was not considered in the draft EIS. However, we analyzed the potential effects of the proposed project on steelhead in San Mateo Creek in section 3.3.5.2 of the draft EIS and concluded that construction at either upper reservoir location would not affect steelhead or steelhead habitat in San Mateo Creek. We also concluded that measures proposed by the co-applicants including their soil erosion control plan, water quality monitoring program at the upper reservoir, and the placement of transmission line poles outside of sensitive area would limit the potential for sediment discharge into San Mateo Creek. We concluded in section 3.3.4.2 of the draft EIS sediment transport several miles downstream to the perennial segments of San Juan Creek would be unlikely and that implementation of a drainage monitoring and remediation plan as recommended by staff and Interior would minimize the potential for negative effects on native fish in the lower San Juan Creek.

Comment 156: Linda and Martin Ridenour asks if the National Marine Fisheries Service (NMFS) responded to the conclusion in the draft EIS that the California summer steelhead would be not adversely affected and requests more specific data to support this conclusion.

Response: We conclude that the construction of the LEAPS Project may affect, but would not likely adversely affect the southern California summer steelhead or steelhead habitat. Only the lower 6 or 7 miles of San Mateo Creek are accessible to southern steelhead trout and spawning occurs in the downstream reach during periods of significant precipitation. Steelhead trout have not been identified in the tributaries to San Mateo Creek that would be crossed by transmission lines. A combination of BMPs during construction and water quality monitoring during the life of the project would reduce, but not eliminate, the potential risk of adverse impacts from the downstream transport of sediments. We sent a letter to NMFS on February 28, 2006, requesting concurrence with our finding that the project would not likely adversely affect California summer steelhead and NMFS has yet to respond.

Comment 157: CDFG does not concur with the finding that the placement of the reservoir in Morrell Canyon would not have an adverse effect to steelhead trout. It states that the project would introduce non-native fish species to the San Juan Creek watershed and affect the water quality of the lower reaches of San Juan Creek from the storage of low quality Lake Elsinore water, which could adversely affect the ability of steelhead to utilize spawning and rearing habitat in the watershed. The introduction of low-quality water from Lake Elsinore could also affect the sustainability of the San Juan Creek as critical habitat. CDFG recommends the co-applicants conduct surveys for steelhead in the San Juan Creek consistent with CDFG and NMFS protocol, and in coordination with CDFG and NMFS, to identify the project effects to steelhead and the portion of the Creek that has been designated as critical habitat.

Response: Introduction of water from the upper reservoir into San Juan Creek would only occur were there to be a spill event, failure of the proposed liner system, or failure of the dam structure, which are highly unlikely given the design of the reservoir. As stated in the draft, surveys of San Juan Creek from Interstate 5 east to just beyond Hot Springs Canyon did not find steelhead; however, non-native species were found, such as mosquitofish, green sunfish, smallmouth bass (*Micopterus dolornieu*), yellow bullhead (*Ameiurus natalis*), and red shiner (*Cyprinella lutrensis*) (FWS, undated, as cited in the Elsinore Valley MWD and Nevada Hydro, 2004a, exhibit E). In its final listings for steelhead, NMFS stated that it believes that steelhead have been extirpated from San Juan Creek, because viable habitat is extremely limited or no longer exists as a result of habitat degradation and they do not anticipate they will occupy the watershed in the future absent major restoration efforts (71 FR 834). In NMFS' final critical habitat designations, San Juan Creek above the I-5 bridge, was excluded as critical habitat based on information provided by CDFG (70 FR 52488). We do not believe effects of project construction or operation will extend to the designated critical habitat portion of San Juan Creek below the Interstate 5 bridge; therefore, we do not recommend surveys for steelhead in that portion of the creek.

Comment 158: The Center for Biological Diversity points out the Cleveland National Forest S10 states that "the future development at Elsinore Peak will be designed to avoid adverse effects to Munz's onion." It states that the construction of eleven towers would disturb nearly 3 acres of potential habitat for this species as well as the spread of non-native species associated with the disturbance would violate the standards of the Cleveland National Forest Land Management Plan. Linda and Martin Ridenour disagree with the draft EIS and the MBA statement that occurrences of Munz's onion are outside the project boundary. They note that they observed this species during a site visit with FERC and USFS staff in 2004.

Response: Neither the proposed nor alternative alignments would affect known populations of Munz's onion on National Forest System lands at Elsinore Peak that USFS staff pointed out during the September, 2004, site visit. Based on the current proposed and alternative alignments, construction of towers should not affect the USFS's ability to meet its objectives under S10. However, the potential occurrence of this species highlights the importance of conducting site-specific surveys at each tower location, inside or outside the Cleveland National Forest, so that the footprint of each tower can be adjusted to avoid affecting this listed species, if it is present. The high risk of introducing and spreading non-native weed species highlights the importance of preparing and implementing plans to manage and monitor weeds and public access.

Comment 159: CDFG disagrees with the conclusion that the project would have no effects on the Quino checkerspot butterfly (*Euphydrayas editha quino*). It states that because the actual alignment of the transmission line and its associated construction effects are unknown, the draft EIS can not determine if the species or its critical habitat would be affected. It recommends conducting protocol level surveys, in coordination with FWS, for suitable habitat along the transmission line corridor once an exact route is established. The Center for Biological Diversity cites the goals of the recovery plan for this species,

which calls for the protection and management of as much as possible of the remaining undeveloped suitable and restorable habitat that is part of the known and historic population distributions and states that the project would impede recovery. Linda and Martin Ridenour ask if the University of California at Riverside, as the leading experts on the Quino checkerspot butterfly, was asked to respond to the data filed by the co-applicants. The Ridenours states that more information is needed on the potential effects of the project on this species.

Response: CDFG misunderstood our conclusions regarding the Quino checkerspot butterfly. As discussed in sections 3.3.5.2, 5.2.7 and 5.6.4, we found that project construction would adversely affect this species as a result of direct and indirect effects on habitat. We did not request expert review of the co-applicants' survey results because we based our conclusions on the project's impact on habitat for this species, rather than its impact on individual butterflies. We anticipate that FWS would determine whether project construction would impede recovery, or whether conservation measures (such as establishing and maintaining preferred plant species in areas where soils are disturbed as a result of construction) would provide adequate mitigation for project impacts.

Comment 160: CDFG does not agree with the finding that "no critical habitat for this species [arroyo toad (*Bufo californicus*)] will be affected." The potential discharge of sediment associated with the construction of the reservoir, permanent reduction in water quality to the creek, as well as the introduction of non-native species that prey on arroyo toad would have an effect on the species and its critical habitat. CDFG states that the EIS needs to address these effects and recommends consultation with FWS. Linda and Martin Ridenour also comment on the inadequate study of the arroyo toad habitat and request that USFS conduct its own study.

Response: To our knowledge, the most current designation of critical habitat (70 FR 70, April 13, 2005) does not include any lands within the San Juan or San Mateo creek watersheds. We did not conduct in-depth analysis of any resources in San Juan Creek, because the risk of a dam failure is very low. However, as indicated in section 3.3.4.2, implementation of a sediment and erosion control plan during construction would be important in maintaining downstream water quality, which would protect essential habitat for the arroyo toad. We have added text to indicate that implementation of Interior's recommended drainage monitoring and remediation plan would also benefit habitat for the arroyo toad in San Juan Creek. To our knowledge, no arroyo toads have been observed at Decker Canyon.

Comment 161: The Center for Biological Diversity and Linda and Martin Ridenour comment that the draft EIS does not address the potentially significant impact to the declining populations of the coastal California gnatcatcher.

Response: Section 3.3.5.2 provides estimates of the amount of suitable habitat that would be removed under either of the project alternatives, and section 5.6.4 concludes the project is likely to adversely affect this species and adversely affect critical habitat. Section 3.3.5.3, though brief, points out that the project would contribute to cumulative adverse effects on this species. In light of the significance of this impact, we are recommending that the co-applicants consult with FWS regarding protection, mitigation and enhancement measures as project designs are being developed. Because the coastal California gnatcatcher is so closely linked to coastal sage scrub habitat at lower elevations, loss of chaparral and oak woodlands at the Decker Canyon site should not affect this species.

Comment 162: Linda and Martin Ridenour comment that MBA did an inadequate job by ignoring areas where the California red-legged frog is located. They ask for information on the dates of the surveys conducted by MBA for the Southwestern willow flycatcher, noting that table 16 in the draft EIS only tells the reader the number of visits but not the dates of the surveys. They also comment that they did not read

any information in the draft EIS about potential effects of helicopter use during construction on this species and recommend that helicopters not be allowed during the breeding and nesting seasons.

Response: Red-legged frog surveys were conducted only in areas that might provide habitat for this species; we are not aware that MBA overlooked any areas that should have been surveyed. The completed survey reports for each species for each year of survey are available to the public on eLibrary (www.ferc.gov) using the "eLibrary" link. For assistance, contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll-free at (866) 208-3676, or for TTY, (202) 502-8659. The description given in section 3.3.5.1 regarding the location of critical habitat is meant only to indicate that it is not immediately adjacent to the project, and that no project features would be constructed within it. We anticipate that the need for timing restrictions would be addressed through consultation with USFS, FWS and CDFG on final designs.

Comment 163: Linda and Martin Ridenour ask how many pairs of Least Bell's vireos were found during the surveys and ask that USFS conduct its own study of this species in the project:

Response: As indicated in section 3.3.5.2, MBA did not observe any least Bell's vireos during its surveys.

Comment 164: The Center for Biological Diversity states that the draft EIS does not address the 50 acres of Stephens' kangaroo rat habitat that would be eliminated but not mitigated outside of the Stephens' Kangaroo Rat HCP area. It again states that the draft EIS cannot analyze effects to any species without population or locational data.

Response: We have added text to section 3.3.5.2 to clarify anticipated project effects on the Stephens' kangaroo rat. Based on information in the Multi-Species HCP, there are no reliable data on Stephens' kangaroo rat populations in the vicinity. CDFG's recent report on special status species indicates the Stephens' kangaroo rat's status is unknown.

Comment 165: The Center for Biological Diversity states that the draft EIS is wholly deficient in its analysis of the proposed project's impact on listed species because it fails to provide population and abundance data either on the project site or region.

Response: We have added information, where available, about populations in the region; however, MBA's surveys did not reveal the presence of any federally listed wildlife species in the project area.

Comment 166: The Center for Biological Diversity comments that the draft EIS needs to disclose what actions would be taken if new populations of listed species are identified and what remedial actions would be taken to prevent or minimize loss of fish or wildlife. It also states that Interior's recommendation no. 2 is not properly described in section 5 of the draft EIS.

Response: We have added text in section 5.2.7 to clarify that the staff alternative includes provisions for implementation of protective measures, if monitoring indicates they are needed. This approach is consistent with the USFS revised preliminary 4(e) condition no. 38 (see appendix C for full text). We have included all the information Interior provided about its 10(a) recommendation no. 2 and Interior did not take issue with our characterization of its recommendations in its letter commenting on the draft EIS.

Comment 167: Pacific Clay states that the cumulative effects analysis in the draft EIS for federally listed species is inadequate because it does not define the range in southern California for each relevant species, fails to identify past, present, and reasonably foreseeable future actions that might affect each species in

its range, fails to identify the project's incremental effect to each species when evaluated in conjunction with the related actions, and fails to evaluate the risks of adverse cumulative affects to each species.

Response: We respectfully disagree and note that we did address cumulative affects to the listed species in the draft EIS. However, in the final EIS we now provide information on the cumulative effects to listed species on a species-by-species basis.

RECREATIONAL RESOURCES

Comment 168: The city of Lake Elsinore and Peter Dawson state that any construction-related drawdown of Lake Elsinore below 1,240 feet msl would have substantial negative affects on recreational use because the Seaport Boat Launch facility and the inlet channel "event" concession are not functional below that elevation. They state that any drawdown below that elevation should be prohibited or a mitigation plan should be developed to mitigate for the effects. John Pecora is concerned the fluctuating water levels of Lake Elsinore would prohibit the launch of his boat from its present storage location. Empire Pre-Cast is concerned that the shoreline would be useless when water elevations are down. Peter Dawson comments that the PRINCESS, a 94 foot paddlewheeler currently being refurbished, would not be able to operate at an elevation below 1,240 feet msl. The Santa Ana Water Board, the State Water Board, and Pacific Clay state that the draft EIS did not address the effects on recreational boating from the project-caused shoreline fluctuations and requests that the final EIS discuss this issue.

Response: The construction and operation of the proposed project would not draw down Lake Elsinore below the minimum target elevation of 1,240 feet msl. The co-applicants propose to perform all in-lake construction, including the intake/outlet structure, behind a cofferdam and would not drawdown the lake below 1,240 feet msl. The project would operate between 1,240 and 1,247 feet msl consistent with the Lake Level Stabilization and Enhancement Project, and would not be able to operate if water levels fell below 1,240 feet msl. We conclude in section 3.3.6.2 of the EIS that because the project would not operate below 1, 240 feet msl, project-related fluctuation in water elevations would not adversely affect existing recreational boating facilities at Lake Elsinore.

Comment 169: The city of Lake Elsinore states that the estimated 6 acres or 0.5 percent loss of Lake Elsinore's surface acreage from the construction of the tailrace tunnels **is** a mischaracterization of the true negative effect on the boating traffic pattern. The City estimates that approximately 20 percent of the lake would be affected and a detailed assessment and mitigation plan for the loss of recreational use by the proposed navigational restrictions should be performed to determine the affect of boating capacity and traffic pattern.

Response: We respectfully disagree. We calculated 6 acres by multiplying two-thirds of the length of the tailrace tunnel (the length that would be in Lake Elsinore and thus would affect boating) by 200 feet and converting to acres.

Comment 170: To assist the city of Lake Elsinore in carrying out its mandatory police powers on Lake Elsinore, the city recommends the co-applicants develop and fund implementation of a Boating Traffic Plan prior to construction to ensure public safety. The city recommends that it review and approve the plan prior to implementation.

Response: To protect public safety during construction, the co-applicants propose detailed site plans that identify contingencies for restricting public access to certain areas, such as near construction activities in the lower reservoir including boating. Therefore, we do not see the need for a separate boating traffic plan.

Comment 171: The city of Lake Elsinore recommends the co-applicants be required to perform an aquatic safety study to consider the public safety element on Lake Elsinore from operations of the project.

Response: If licensed, the licensee would be required by the Commission's regulations to prepare a public safety plan that would detail the location of safety signage and buoys and any other safety measures designed to protect the public using Lake Elsinore or other project facilities.

Comment 172: The city of Lake Elsinore recommends that the co-applicants provide annual employee orientation on the projects to all city employees, local law enforcement, fire department staff, and commercial boating facilities on the lake.

Response: The co-applicants, as one of their environmental measures, propose to provide tours of the generating facilities. As needed, local public safety agency personnel could tour facilities and ask questions about public safety obligations.

Comment 173: Linda and Martin Ridenour disagree that the fish stocking program would improve angling and state that anglers would have to wade out 95 feet (during drawdowns) to be able cast. As mitigation, they recommend a walkway with a non-slip surface, preferably located at Perret Park, wide enough for 10 anglers and their gear.

Response: The fish stocking program would not only improve angling from the shore but also from the water as angling occurs from both the shore and on the water. Before the implementation of the Lake Level Stabilization and Enhancement Project, changes in lake level elevations resulted in fluctuations of more than 95 feet. The proposed project supports the Lake Level Stabilization and Enhancement Project, would reduce overall effects to fishermen who wade out into Lake Elsinore as lake levels would be higher than, and fluctuate within a narrower range than historical levels. Therefore we do not find that the provision of a walkway for fisherman is warranted.

Comment 174: Riverside County recommends the co-applicants develop and fund the operation and maintenance costs for a 30-acre sports park to meet local recreation needs.

Response: Based on comments received on the draft EIS, the co-applicants now propose to provide a developed turn-key park facility, which could include sports fields, at the proposed powerhouse construction lay down locations to either the city of Lake Elsinore or Riverside County. The co-applicants propose to retain ownership and responsibility for O&M activities subject to a determination whether such ownership and operation would be authorized under the Elsinore Valley MWD's existing special district authority for developments not in public ownership and not located on National Forest System lands.

Comment 175: Riverside County states that the co-applicants should be required to secure, renovate, and fund a lakeside park facility on 10 to 15 acres on Grand Avenue, on the Naval Academy site if available.

Response: We have analyzed the potential effects of the proposed project on recreational opportunities in the project vicinity and conclude that the co-applicants proposed recreational facilities at the Santa Rosa powerhouse construction lay-down area would provide a new recreational experience. There is no evidence that the existing public access to Lake Elsinore is inadequate and therefore we do not include an additional lake side park facility in the staff alternative.

Comment 176: Jay Scott and other individuals protest the finding in the draft EIS that development of a formal landing site at Ortega Oaks would benefit hang gliders as there would still be interference from

transmission lines, substations, fencing, and other structures that would cause air disturbance of normal wind conditions.

Response: The revised co-applicants' proposal and staff alternative transmission alignment to place the transmission lines underground in the vicinity of the launch sites and from the north/south transmission line to the Santa Rosa powerhouse and not the Ortega Oaks powerhouse site would be greatly reduce interference with hang gliding activities over the alignments included in the draft EIS. We have revised the text in section 3.3.6 *Recreational Resources* of the EIS relative to the co-applicants' proposal. While we agree that a formal landing site at Ortega Oak would benefit hang gliders, we no longer include this measure in the staff alternative because we now include the Santa Rosa powerhouse location.

Comment 177: Nevada Hydro comments that the co-applicants' initial assessment of impacts on the existing Morgan Trail was based on plotting the trail on USGS topographic maps. USFS subsequently provided the co-applicants with additional information identifying the as-built routing of the trail, which differed considerably from the initial presentation. Based on the updated information, the co-applicants agree that the proposed Morrell Canyon upper reservoir would necessitate both the temporary closure and permanent re-routing of a portion of the trail should the Morrell Canyon site be selected.

Response: We have clarified the text in the final EIS to disclose that the proposed Morrell Canyon reservoir would require the relocation of the Morgan Trail.

Comment 178: The Center for Biological Diversity comments that the draft EIS should not characterize the Morgan trail use as "low" in the absence of any user studies. It also points out that the map showing trail seems to follow an old ridge route rather than the current trail, which rapidly descends into the riparian oak woodland of upper Morrell Canyon. David Voss questions the use of USFS staff observations of the number of vehicles parked at the trailhead as a basis for determining usage of Morgan Trail. He comments that users typically carpool and that just counting vehicles underestimates the usage. Linda and Martin Ridenour also disagree with the use characterization of Morgan Trail in the draft EIS and question the lack of information on the effects of the proposed project on the other three trailheads within the Cleveland National Forest. They disagree with statement in the draft EIS that there are no developed recreational sites in Decker Canyon and ask the USFS to respond that there is a trail system located there.

Response: We agree that in the absence of user studies the exact level of use is unattainable; however, we have based our characterization of use on communications with USFS staff who are responsible for managing the resource. The presence of 2 to 3 vehicles on a peak use weekend, even if full of passengers, would comprise only 15 hikers and represent 20 percent of the parking lots capacity. Non-peak weekends and weekdays would receive even less use, supporting our characterization as "low," especially when the forest received more than 31,000 visits to the wilderness alone. We have modified the map to show the current location of Morgan Trail, which is consistent with the effects analysis. As for Decker Canyon, there are no system trails maintained by the Cleveland National Forest in Decker Canyon.

Comment 179: Pacific Clay and Linda and Martin Ridenour criticize the recreational resource analysis because it understates the effects of the project on trail destruction, public access to the Cleveland National Forest, disturbance of developed recreation sites, inconsistency with the USFS Land Management Plan's designations, and inadequate figures.

Response: We respectfully disagree. The draft EIS discloses the effects of the proposed project on existing trails, recreational use in the Cleveland National Forest, and affects on existing developed recreational facilities in section 3.3.6.2, and disclose inconsistencies with the Cleveland National Forest Land Management Plan in section 3.3.7.2. We have clarified the text in section 3.3.6.2 of the final EIS

that construction of the Morrell Canyon Reservoir alternative would require the relocation of portions the Morgan Trail. Also, placing the transmission line underground in the vicinity of the hang gliding launch sites would affect use of the Morgan Trailhead for about a year during the construction of the transmission line. Access to the Cleveland National Forest in the general vicinity of construction would not be precluded; however, the recreational experience along forest access routes near proposed project facilities (reservoir, transmission lines, support towers) would be adversely affected.

Comment 180: Linda and Martin Ridenour comment that if an upper reservoir were built then it should be open to the public as a water resource and should not be enclosed behind a chain link fence. In addition, they state that a day-use recreation facility should be located at the upper reservoir site as mitigation for losing use of Decker Canyon.

Response: We conclude that the co-applicants' proposal to fence the upper reservoir is reasonable given that the surface elevation of the upper reservoir would fluctuate over 50 vertical feet during the day. Instead, the co-applicants propose to develop a recreation facility either at the upper reservoir construction laydown area or at an alternative location as may be approved by the USFS.

Comment 181: The County of Orange requests the co-applicants work with the Cleveland National Forest staff to ensure that the Main Divide Road is kept open during project construction and restored to its original condition, or better, as part of project completion.

Response: Construction of the proposed upper reservoir and buried transmission line would require work to be performed in close proximity to South Main Divide Road and rely on the road network to deliver construction related equipment and materials. Because homeowners who live in the area also rely on the road, it would be open for the duration of project construction. The co-applicants propose to prepare a traffic management plan that would include controls to traffic flow in and around project construction. The co-applicants also propose to maintain or rehabilitate the road to pre-project construction conditions. Furthermore, USFS preliminary 4(e) condition no. 13 specifies that the co-applicants provide a "safety during project construction plan" to identify potential hazards near public roads, trails, and recreational facilities, and measures necessary to protect public safety. Implementation of this measure should address the County of Orange's concerns.

Comment 182: Nevada Hydro states that the draft EIS mischaracterizes the nature of Lion Spring by describing that feature as a "cluster of natural springs" (on page 3-33). Further, Nevada Hydro is unaware of the existence of "Lion Spring Trail." Finally, Nevada Hydro questions the statement "this type of setting is not abundant in the general area" on page 3-202 when there are 35,330 acres of oak woodlands with the Multi-Species HCP study area and three large clusters in the Cleveland National Forest from the Santa Ana Mountains near Glen Ivy south toward San Mateo Canyon (Riverside County, 2003, page IIC-94).

Response: In section 3.3.6.2 of the draft EIS we describe Lion Spring as a location where a complex of seeps rise through subsurface fractures on the east side of Morrell Canyon, consistent with the description in MBA 2006. We revised the description in the water quality section of the final EIS to be consistent. We agree that there is no Lion Spring Trail and have revised the text in section 3.3.6.2 to refer to Morgan Trail. The 35,330 acres of oak woodlands within the Plan Area account for less than 3 percent of the existing vegetative cover, a fact that supports our description of the oak woodlands as "not abundant." More importantly, coast live oak woodlands, such as those that occur at Morrell and Decker canyons, account for only 6,660 acres of the Plan Area, or 0.5 percent of the existing vegetative cover.

Comment 183: Elsinore Hang Gliding Association comments that there are no specific measures for dispersed recreation. The project as proposed by the co-applicants could affect dispersed recreational use

at the wilderness area, hang gliding launch sites, Morgan Trail, powerhouse site, and hang gliding flight paths and landing areas.

Response: We analyzed the potential effects of the proposed project on dispersed recreation in section 3.3.6.2 of the EIS and conclude that there would be a temporary disruption to use of the Morgan Trail and hang gliding for about one year during construction of the project. The staff alternative includes reasonable measures to ensure the safe public use of existing the dispersed recreational opportunities in Cleveland National Forest during the construction of the upper reservoir and placement of the transmission towers.

Comment 184: Nevada Hydro comments that none of the studies conducted by the co-applicants have identified or suggested the potential likelihood of any micro-meteorological impacts on air currents or thermals associated with the construction of the upper reservoir and, therefore, disagree with the statement on page 3-202 of the draft EIS that the construction of a reservoir in Morrell Canyon would eliminate a series (over 3) of known house thermals along the ridge to the southwest of Morrell Canyon.

Response: We agree that the construction of a reservoir with a 100 acre surface area would not affect air currents in the project area. However, the footprint of the upper reservoir in Morrell Canyon covers the originating location of several house thermals and therefore would eliminate them as known locations of thermals.

Comment 185: Jay Scott and other individuals state the draft EIS is incorrect in reporting that hang gliders launch from nine various points along South Main Divide Road in the vicinity of the proposed Morrell Canyon upper reservoir site and indicate that they know of only two authorized launch sites (Edwards and E) in the Cleveland National Forest.

Response: We have modified the text in the final EIS accordingly.

Comment 186: Jay Scott and other individuals state that the staff transmission alignment would be hazardous to hang glider pilots because of the close proximity of the switch yard and buildings to the landing area. They state that placing the power lines underground or placing the overhead lines at least one mile from the two authorized launch sites and the landing area would put hang gliders at an acceptable risk that would most likely not result in loss of life. They also comment the current reference to parasailing should be changed to paragliding as parasailing occurs on waterbodies.

Response: We have reconsidered the transmission alignment and now include a staff alternative transmission alignment in the final EIS that places the transmission lines underground in the vicinity of the hang gliding launch. We also now include the Santa Rosa powerhouse location in the staff alternative which eliminates the construction of an above ground substation and transmission lines in the vicinity of the landing area at Ortega Oaks. Under both the co-applicants' proposed and staff alternative transmission alignments, there would no longer be any above ground transmission lines between the launch areas and the landing site at Ortega Oaks. We have deleted references to parasailing in the final EIS.

Comment 187: Francis Hoffman, on behalf of the Elsinore Testing of Experimental Aircraft Mechanism, states that the comment on page 3-184 of the draft EIS that successful launches occur about 75 percent of the time is inaccurate and further suggests that the USFS should be collecting statistics on hang gliding activities in the Cleveland National Forest.

Response: We discussed hang gliding use in general with Mr. Charles Mackin of Infrastructure Solutions, a local business that services the hang gliding industry. He indicated that about 75 percent of

the pilots taking off at the launch sites travel east and then west and find thermals that support them. Mr. Mackin indicated on a typical day with 50 pilots launching from the E site 10 may head cross country, 25 would find sufficient thermals and stay above the mountains for a number of hours and land at the landing zone while others, unsuccessful in finding adequate thermals would 'sled' to the landing site. He indicated that these were estimates based on his knowledge of practice in the area.

Comment 188: Bret Daniel, Rancho Capistrano Property Owners Association, and other individuals comment that the hang gliding safety mitigation measures proposed in the draft EIS are "vastly inadequate." In particular they are concerned that adding power lines either in front or behind the South Main Divide Road will create a major hazard for recreational flight in this area. They also comment that this area is a destination for pilots from all over the world and the project will compromise not only his safety but the safety of other local pilots. Francis Hoffman, on behalf of the Elsinore Testing of Experimental Aircraft Mechanism, and Pacific Clay state that the mid-slope alignment will cause an unacceptable risk of death to hang gliders. Jay Scott and other individuals request that the Commission prohibit new overhead power lines within one mile of the two authorized hang glider launches (Edwards and E) located in the Cleveland National Forest or within one mile of the landing zone located on parcel 386120029 in Riverside County. In support of this request, they cite the draft EIS for the Agua Fria National Monument/Bradshaw-Harquahala Planning Areas issued by National Park Service that includes an alternative to prohibit new overhead power lines, phone lines, or communication facilities within one mile of launching and landing zones in the general project area that hang gliding commonly takes place. The city of Lake Elsinore also states its concern for hang-glider safety with the staff alternative transmission alignment and request than an underground transmission line in certain locations be evaluated.

Response: We have reconsidered the transmission alignment and now include a staff alternative transmission alignment in the final EIS that places the transmission lines underground in the vicinity of the hang gliding launch sites. We also now include the Santa Rosa powerhouse location in the staff alternative which eliminates the construction of an above ground substation and transmission lines in the vicinity of the landing area at Ortega Oaks. Under both the co-applicants' proposed and staff alternative transmission alignments, there were no longer be any above ground transmission lines between the launch areas and the landing site at Ortega Oaks.

Comment 189: Riverside County states that the final EIS should describe the types of improvements that would occur at the top or bottom of the hill to meet the needs of hang gliders.

Response: Both the co-applicants proposed and staff alternative transmission alignments would bury the line in the vicinity of the USFS permitted hang gliding launch sites and significantly reduce conflicts with hang gliding activities. The staff alternative no longer includes a powerhouse and substation at the Ortega Oaks sites and eliminates conflicts with the existing informal landing site at Ortega Oaks. The staff alternative does not include any other measures to enhance hang gliding activities.

Comment 190: Lake Elsinore Soaring Club indicates the placement of transmission lines and towers anywhere along the crest or northeast facing slop of the Ortega Mountains between Clinton-Keith Road and Santiago Peak would make gliding (different than hang gliding in that pilots are in an enclosed, lightweight, powerless aircraft) much more dangerous and even deadly. It recommends the relocation of the transmission lines to the southwest side of the Ortega Mountains.

Response: According to the Soaring Club, the sport of gliding uses the lift winds rushing into the east side of the mountains near Lake Elsinore as hang gliders rush up and over the mountains, analogous to pelicans flying along ocean waves, typically flying near the ridgeline. Based on comments received on the draft EIS, we reconsidered the transmission alignment and now include a staff alternative transmission

alignment in the final EIS that places the transmission lines further west away from the crest or northeast facing slope of the Ortega Mountains and also includes an underground portion in the vicinity of the hang gliding launch and landing sites.

LAND USE AND AESTHETICS RESOURCES

Comment 191: Riverside County states that the lack of specificity in the draft EIS makes it impossible to determine what effects would result from the daily lowering of the surface level of Lake Elsinore. It states a more detailed study of the lake shore and properties that adjoin it is needed to ensure that property values, land uses, and access points are protected. The city of Lake Elsinore states that the co-applicants should be required to acquire undeveloped shoreline property that lies below 1,263.3 feet msl to reduce effects on private property owners and then should be used for development of public recreation and environmental habitat preservation.

Response: As described on pages 3-50 through 3-56 of the draft EIS, project operations would reduce seasonal lake level fluctuations compared to the natural pattern and would maintain the lake level between 1,240 and 1,249 feet msl (revised in the final EIS to 1,240 to 1,247 feet msl). However, project operations would introduce a daily fluctuation that does not currently occur. This would be similar to beach property where the tide goes in and out over the course of a day resulting in shoreline migration from 8 feet to over 100 feet. Because this daily and weekly shift in shoreline would be less than the shoreline migration experienced during dry years, we do not see the need to do a more detailed study of the potential effects on lake shore properties, nor do we see the need for the co-applicants to acquire this undeveloped shoreline property. The lake is already managed by other parties to the 1,263 elevation.

Comment 192: Riverside County comments that a major portion of the proposed project is located within the Riverside County Flood Control and Water Conservation District's (Flood Control District's) preliminary Lakeland Village Master Drainage Plan (MDP) boundary and the proposed alignment for the powerhouse and the inlet/outlet structure may be in potential conflict with one of its proposed facilities. Although the powerhouse is likely to be constructed underground and therefore, would most likely not affect the facility, the issue of right-of-way and easement for future operation and maintenance of the MDP facility needs to be addressed in the draft EIS. Additionally, it states that the intake/outlet structure may be in potential conflict with one of its proposed drainage facility outlets downstream of the intersection of Grand Avenue and Adelfa Street into Lake Elsinore. Riverside County states that the draft EIS should address potential effects on the proposed MDP facilities in the project area.

Response: We have revised the text of section 3.3.7.2, *Environmental Consequences, Effects of Construction and Operation on Infrastructure*, to include the information about the MDP provided by Riverside County and conclude that consultation with the Flood Control District would address both existing and proposed Flood Control District facilities.

Comment 193: Riverside County states that the project would have a cumulative adverse effect on the Fire Department's ability to provide an acceptable level of service. They recommend the following mitigation measures: (1) participate in the Fire Protection Impact Mitigation Program; (2) prepare a traffic management plan to be reviewed by the County Fire Department; (3) all buildings located in Riverside County would be required to have an approved access and be constructed in accordance with Riverside County Ordinance Nos. 460 and/or 787, subject to review and approval by the Riverside County Fire Department; (4) all water mains and fire hydrants providing fire flows should be constructed in accordance with the appropriate sections of the Riverside County ordinance and be subject to review and approval by the Riverside County Fire Department; (5) any buildings constructed within the "Hazardous Fire Area" of Riverside County should comply with the special construction provisions contained in Riverside County Ordinance 787 and subject to approval by the Riverside County Fire

Department; and, (6) prior to approval of any development plan for lands adjacent to open space areas, a fire protection/vegetation management (fuel modification) plan should be submitted to the Riverside County Fire Department for review and approval.

Response: As discussed on page 5-37 of the draft EIS, the staff recommends that the co-applicants prepare and file a road and traffic management plan for non USFS roads. This plan would be developed in consultation with Riverside County and the city of Lake Elsinore. The co-applicants have indicated that they will comply will all applicable local and county ordinance during the construction and operation of the project.

Comment 194: The Lake Elsinore Unified School District and Pacific Clay indicate that the draft EIS does not discuss the potential effects of project construction on the Butterfield Elementary School on Grand Avenue. According to the Lake Elsinore Unified School District, the school would be inoperable for several years under the co-applicants' proposal because of construction activities and the resulting noise levels directly adjacent to the school. Additionally, Lake Elsinore Unified School District states that the electromagnetic fields (EMFs) resulting from the powerhouse and transmission lines may be too large a risk to the students and teachers, which would require permanently closing the school and building a costly new school in an another location. The Lake Elsinore Unified School District would like to see these effects evaluated in the final EIS along with appropriate mitigation measures.

Response: The effects analysis on page 3-305 of the draft EIS, *Effects of Construction on Noise,* discloses the proximity of the Butterfield School to the proposed Santa Rosa powerhouse site and evaluates the worst case scenario for noise levels, concluding that because the majority of the loudest work would occur underground, noise effects would be less than significant and would be within the Riverside County and city of Lake Elsinore's regulations. The effects of operation on EMF is discussed on page 3-250 of the draft EIS, and concludes that there would be no adverse EMF effects at the school. Furthermore, based on comments received on the draft EIS, we have evaluated the scenario of placing the transmission lines underground, thereby diminishing the EMF concerns raised by the District and by Pacific Clay.

Comment 195: Anna Lee states that construction of a powerhouse at the Evergreen Site would lower the value of her retirement properties on Evergreen Street (primary residence) and Garner Road (income property).

Response: Given that the majority of the powerhouse would be underground and that the property would be landscaped into a park-like setting, we conclude that the powerhouse would not be likely to adversely affect nearby property values except perhaps temporarily, during construction. The co-applicants' proposed acquisition of properties nearest the powerhouse site would help reduce the effects of construction on those living closest to the site. The aboveground substation could adversely affect nearby property values, as described on page 3-269 of the draft EIS.

Comment 196: The Lakeland Village/Wildomar Redevelopment Project Area Committee comments that both the proposed and staff alternatives would place a hydroelectric plant adjacent to the redevelopment project area. It states that the draft EIS does not mention the redevelopment project area or address how construction and operation of the proposed project would affect its mission of redevelopment. It expresses concern about traffic during construction on Grand Avenue, the condition of pavement and shoreline staging areas after construction, fluctuating water levels on the appeal of Perret Park, the effect on property values, and the potential for inundation of its project area should there be a dam break at the upper reservoir. It sees no acceptable mitigation relative to these concerns. Linda and Martin Ridenour also request information on the effects of project-induced fluctuation on the use of Perret Park.

Response: Construction and operation of the project would affect the redevelopment area in the same way that it would affect the land uses and property owners, which we discuss in the draft EIS on pages 3-227 through 3-233 and pages 3-268 through 3-273. We discuss effects on traffic and pavement on pages 3-251 through 3-259 of the draft EIS, and discuss the risks associated with a dam break on pages 3-29 through 3-33. With respect to effects on property values, the fact that the majority of the powerhouse would be underground and that the property would be landscaped into a park-like setting leads us to conclude that the facility would not be likely to adversely affect the redevelopment project area or property values except perhaps temporarily, during construction. The aboveground substation could adversely affect nearby property values, as described on page 3-269 of the draft EIS.

Perret Park is a county-owned park along the southwestern shore of Lake Elsinore in Lakeland Village. Riverside County closed the park in 1999, but has since reopened the park with renovations. We are not aware of any renovations that included the development of beaches at the park. As such, we maintain that the only developed recreational facilities on Lake Elsinore that would potentially be directly affected by project operations would be boat docks, as stated on page 3-198 of the draft EIS.

Comment 197: Linda and Martin Ridenour state that figure 17 in the draft EIS shows their home within the Cleveland National Forest boundary, and they request clarification of this information. They also state that figure 18 is inadequate because it does not show adjacent properties. They state that residents need to know the location of their properties relative to the proposed project facilities including the construction lay-down areas and the water flow pipes.

Response: Figure 18 shows the jurisdictional boundary of the Cleveland National Forest, as shown on official USFS maps (USFS, 1994). However, the USFS does not have jurisdiction over private lands (in-holdings) within the boundary. The Commission issued a public notice describing the revised co-applicants' proposed transmission alignment and the revised staff alternative transmission alignment to all affected property owners (within 0.25 mile) on October 3, 2006. This notice included the identifying numbers of all parcels located within 0.25 mile of both transmission alignments and the proposed Santa Rosa powerhouse location such that property owners could determine if their lands would be affected by the proposed project. The Commission afforded affected property owners an opportunity to submit additional comments at that time, and this final EIS reflects our assessment of the additional comments that were submitted.

Comment 198: Edwin Thorell questions whether the reference to Canadian studies on the effects of transmission lines on property value is relevant to California and suggests that the USFS should engage in land swaps with displaced landowners to provide the landowners with property in the same rural condition of their current land.

Response: The effect of any project on property values is a function of the particular circumstances of the project, the affected properties, and the real estate market at large. However, potential effects can be estimated based on the experiences of similar projects. In that respect, the Canadian studies are just as relevant as other studies, which together suggest that transmission line effects on property values are not as significant as property owners generally expect. Any landowners whose land would be used for project facilities would be compensated by the co-applicants for their land.

Comment 199: Pacific Clay states that the staff alternative transmission alignment would run directly through its multi-million dollar brick making kilns and brick storage facilities, which would affect and likely destroy the entire manufacturing area. Pacific Clay states that it is being asked to bear a disproportionate economic burden because it, along with affiliated companies, has large-scale commercial and residential development plans that would be affected either directly or indirectly by the route of the transmission line. It estimates the potential economic damage to itself would be in excess of

$150,000,000. It further states that the two northerly proposed alignments would result in a more equal distribution of the economic damage, and it would not consent to the use of or voluntarily convey any of its property holdings for the advancement of the proposed project. Nevada Hydro comments that placement of towers on Pacific Clay property could be problematic since mining operations create a changing landscape that would prevent the placement of towers within the actively mined area. Nevada Hydro notes that the resources present at Pacific Clay are designated as a mineral resource zone and are of regional and statewide significance. The city of Lake Elsinore also states that transmission alignment alternative no. 2 presents an unnecessary incursion into a soon to be developed area of Lake Elsinore and would adversely affect this new community while providing few off-setting benefits. It further states that although it generally supports the proposed mid-slope alignment, the northern segment should follow the alignment proposed by the co-applicants to begin at the existing SCE substation to the proposed northern substation and then running along the Cleveland National Forest border.

Response: We have reconsidered the staff alternative transmission alignment and now recommend an alignment that coincides with the co-applicants' proposed alignment in areas outside of the Cleveland National Forest (to the north and to the south of the Forest). Pacific Clay lands and areas in the city of Elsinore targeted for future development would no longer be traversed or be adjacent to the co-applicants' proposed or staff alternative transmission alignment.

Comment 200: Nevada Hydro disagrees with the statement in the draft EIS on page 3-229 that the northern and southern segments of the proposed transmission line are located on undeveloped lands and no homes or buildings would need to be razed or moved to accommodate construction along the proposed transmission alignment. Nevada Hydro states that as proposed the co-applicants' transmission alignment traverses a limited number of forest in-holdings upon which easements or other rights-of-way would be required and that a limited number of existing residences could be displaced. Nevada Hydro also comments that the mid-slope alignment would adversely affect more private property than the co-applicants' proposal.

Response: We have revised the text of section 3.3.7.2, *Environmental Consequences, Effects of Construction on Change of Land Use*, to reflect the fact that some residences could be displaced by the co-applicants' proposal and by the staff alternative transmission alignments, both of which have been modified since the draft EIS was published.

Comment 201: Rancho Capistrano Property Owners Association and Jon R. Johnson note that safety recommendations during fires prohibit people from being within 100 to 500 feet of transmission lines. Because much of the proposed transmission line route would be within 100-500 feet community escape route, it would be safety hazard during brush fires.

Response: Both the proposed and staff alternative transmission alignments now include underground segments that eliminate the conflict between the transmission line routes and the community escape route for Rancho Capistrano residents.

Comment 202: Rancho Capistrano Property Owners Association, Jon R. Johnson, and Andrew and Sandra Mauthe note the proposed and staff alternative transmission lines would interfere with the ability for fire crews to fight fires from the air.

Response: The USFS' number one priority in firefighting is public and firefighter safety. The USFS does not place aircraft, crews, engines or fire fighting equipment in fire areas unless the agency can provide for their utmost safety. Smoke consists of carbon particles, which can conduct electricity. If the concentration of carbon is high enough, an electrical discharge from the line to the ground, similar to lightning, can occur. The discharge hazard increases as line voltage increases, distance to the ground

decreases, and the amount of smoke increases. High power transmission lines are just one of several safety considerations that need to be addressed in fire suppression. Based on the history of fire suppression in southern California, the presence of transmission lines would interfere with aerial fire suppression operations. Placing the line underground along South Main Divide Road in the vicinity of the two USFS permitted hang gliding launch sites to a point south of the egress road to Rancho Capistrano and along the connection to the Santa Rosa powerhouse as currently proposed by the co-applicants and recommended by the staff would reduce interference with fire suppression activities in these locations.

Comment 203: The Fernandez Parties, Rancho Capistrano Property Owners Association, La Cresta Property Owners Association, and Lynice Spangler state that the draft EIS does not adequately identify and mitigate for the potential fire hazard created by the transmission lines near their property. La Cresta Property Owners Association recommends if the transmission lines are built, the co-applicants be required to build alternate evacuation routes for residents of the Santa Rosa Plateau communities.

Response: The staff recommended alternative includes several measures that would address your concerns about safe egress from Santa Rosa Plateau communities in areas prone to wildfires. Should the proposed project be licensed, the co-applicants would be required to provide the USFS with a hazardous vegetative fuel treatment plan and the USFS and the city of Lake Elsinore with road and traffic management plans for both USFS and non-USFS roads.

Comment 204: The Fernandez Parties indicate that there is a private airport located on the property directly adjacent and south of their property that would not be usable if the transmission lines were built above ground in that location. They state that the State Aeronautics Act prohibits the building of structures such as transmission lines in the vicinity of an airport and require permits for all other structures that may obstruct air navigation in the vicinity of an airport.

Response: We have revised the text of section 3.3.7.1, *Affected Environment, Land Use Within and Adjacent to the Project Boundary* to correctly describe the airstrip and have revised section 3.3.7.2, *Environmental Consequences, Effects of Construction on Change of Land Use*, to conclude the co-applicants' proposed or staff alternative transmission alignment would be located within 3,000 feet of the private airstrip and could render the private airstrip unusable**.**

Comment 205: Nevada Hydro comments that the draft EIS concludes that the staff alternative transmission alignment, located about 1.5 miles from the Skylark Airport, would not be expected to pose a safety hazard to aircraft operating according to standard flight rules. The draft EIS concludes that the co-applicants have not provided enough detail to assess the effects of their proposed transmission alignment on operations at Skylark Airport. Nevada Hydro states that given that the co-applicants' proposed transmission alignment is located 2 miles from Skylark Airport, it would be reasonable to conclude that the co-applicants' proposed transmission alignment would have less effect than those associated with an alignment that is closer to the airport. It refers Commission staff to the discussion of aircraft safety hazards in section 11 of the final license application. Nevada Hydro also points out that the description of Skylark Airport as a private dirt airstrip on page 3-297 is incorrect.

Response: We have revised the text to clarify that neither the co-applicants' proposal nor the staff alternative transmission alignment would be expected to pose a safety hazard to aircraft operating according to standard flight rules out of Skylark Airport. We have also corrected the text on page 3-297 concerning the airport.

Comment 206: Elsinore Hang Gliding Association (EHGA) comments that the Commission must ensure that the project meets all appropriate comprehensive plans associated with the Land Management Plan Cleveland National Forest Strategy R5-MB-077 September 2005.

Response: As discussed in section 3.3.7.2, *Environmental Consequences*, Consistency with Land Management Plans, in the draft EIS (page 3-235), we state that the staff alternative transmission alignment would not be consistent with the Land Management Plan land use zones and that an amendment would be required before construction of the transmission line could occur.

Comment 207: The Center for Biological Diversity states that the proposed LEAPS Project violates the Cleveland National Forest Land Management Plan by failing to demonstrate why an alternative transmission alignment off the forest would not be entirely reasonable. Further, it states that the draft EIS incorrectly identifies the land use zoning for the proposed Morrell upper reservoir and part of the proposed Decker upper reservoir sites. It points out that these proposed facilities would be located within the Back Country Motorized Use Restricted land use zone and that developed facilities in this zone are suitable only by exception.

Response: We agree that the Morrell Canyon upper reservoir site and portions of the Decker Canyon upper reservoir site are located in the Back Country Motorized Use Restricted land use zone and have revised the text in the final EIS accordingly. The USFS indicates that it could consider utility facilities as a suitable use by exception in this land use zone.

Comment 208: The Center for Biological Diversity comments that the proposed LEAPS Project would not enable the USFS to meet the desired condition for Elsinore Place under the Cleveland National Forest Land Management Plan.

Response: Based on comments on the draft EIS we have included photo simulations to characterize the effects of the proposed project on the aesthetic resources. The EIS does disclose that construction and operation of the proposed project would conflict with the USFS Land Management Plan's Scenic Integrity Objectives, as stated on page 3-242 of the draft EIS. The 2005/2006 revised Cleveland National Forest Land Management may need to be amended to make the project consistent with the plan.

Comment 209: The Natural Resource Defense Council and Pacific Clay state that the project is incompatible with Cleveland National Forest and Lake Elsinore land-use plans and policies, such as the High Scenic Integrity Objectives and the BLM's Visual Resource Management Program. Additionally, the Natural Resource Defense Council states the draft EIS dismisses the possibility that Morrell Canyon could be designated a wilderness area by the USFS and Pacific Clay states that the Visual Resource Management Plan recommended in the draft EIS is inadequate mitigation for the level of effects. Mr. Mosier recommends the final EIS affected environment identify the existing viewsheds pertinent to the LEAPS Project and that the surface of Lake Elsinore should be included as a key observation point due to its panoramic views. Additionally, Mr. Mosier suggests the final EIS include an application of the Scenery Management System to inventory and analyze the scenery values of those lands in the final EIS. Mr. Mosier recommends the Scenery Management System should be applied so as to predict future scenic integrity levels and present photo simulations of the proposed alternatives. Mr. Mosier also claims that a more thorough analysis is needed to support the analysis in the draft EIS related to the mid-slope transmission alignment. Lastly, Mr. Mosier recommends using the title Scenery Conservation Plan to be consistent with USFS policy direction as opposed to Visual Resource Management as proposed by the co-applicants and used in the draft EIS.

Response: In the final EIS, we have included the viewsheds pertinent to the discussion of the aesthetic affected environment and included Lake Elsinore as a key observation point. We have also developed

photo simulations of the proposed project alternatives as seen from important viewsheds to enhance the presentation of the existing landscape and the potential effects of the project on the visual resources. The simulations portray the full range of the project's effects on scenery expected within the project area's sensitive public viewsheds. The Scenery Management System (SMS) was used by the USFS to develop the current Scenery Integrity Objective's against which the proposed project is evaluated against. The SMS also provides a nationally consistent method for identifying degrees of scenic integrity effects that may be created by project proposals.

Comment 210: The Center for Biological Diversity comments that the draft EIS is inappropriately silent on the location of Morrell and Decker upper reservoir sites in the Wildhorse Inventoried Roadless Area. It points out that the USFS has agreed not to authorize road construction of the type contemplated by the proposed project until the state's roadless areas' status under the new Roadless Rule (section 1925.04b of the Interim Directive [1920-2006-1]) has been determined.

Response: According to the current Cleveland National Forest Land Management Plan, the areas of the forest where Morrell and Decker reservoirs are proposed is designated as an Inventoried Roadless Area that allows consideration for road construction or reconstruction. However, the USFS is enjoined from implementing the 2005 Roadless Rules. Contrary to the Center for Biological Diversity's comments, the Final Land Management Plan does not specify a Wildhorse Inventoried Roadless Area.

Comment 211: Pacific Clay also states that an amendment would be needed to the Cleveland National Forest Land Management Plan to construct either the co-applicants' proposed or staff's recommended transmission line alignments.

Response: On page 3-239 of the draft EIS, we acknowledge that construction along either the co-applicants' proposed transmission alignment or the staff alternative transmission alignment would require an amendment to the Cleveland National Forest Land Management Plan.

Comment 212: Christopher Willis comments that the proposed project would "destroy the untouched feel and character of the pristine open areas." He is especially concerned about the irreparable damage to the beauty that the current National Forest is mandated to preserve and speaks of the public benefit that extends beyond actual visitors. There is societal benefit to knowing that such unspoiled vistas exist.

Response: The Cleveland National Forest Land Use Plan is the framework designed to provide for a balanced management of forest service resources and values. We recognize the USFS has recently gone through an extensive public planning process to identify and develop policy to be balanced stewards of the forest. The plan recognizes the potential for future development within the forest, designates certain lands as acceptable for various land uses, and sets guidelines for allowable alterations to the landscape. The plan provides for the preservation of certain unspoiled vistas and lands. We believe the EIS discloses the effects of the proposed project on the USFS lands and indicate where it is incompatible with the approved plan. The Cleveland National Forest Land Management Plan may need to be amended to accept the project's inconsistencies while retaining the current plan's desired conditions and outcomes.

Comment 213: EHGA, Jay Scott, and other individuals comment that the EIS should consider the effects on Preservation Visual Quality Objective under the original Visual Management Plan. It states that no above-ground transmission alignments should be placed on the Trabuco Ranger District, Cleveland National Forest.

Response: The EIS evaluates the effects of the proposed project with the most current Cleveland National Forest Land Management Plan, which uses Scenic Integrity Objectives. The "Very High"

Scenic Integrity Objective is essentially the same as, and correlates directly with, the "Preservation" Visual Quality Objective of the original USFS Visual Management System. The Cleveland National Forest Management plan assigns the "Very High" Scenic Integrity Level within the entire San Mateo Wilderness and no other lands near the project area. Since no Project features are proposed within the wilderness, the Very High Scenic Integrity Objective (corresponding to the Preservation Visual Quality Objective) does not apply to this project.

Comment 214: Mr. Mosier suggests that the final EIS be more informative by indicating that the Moderate Scenic Integrity Objective applies to less than 2 to 3 percent of the total length of the proposed transmission line.

Response: The final EIS discloses the approximate length of the proposed transmission lines that would traverse Moderate Scenic Integrity Objective lands.

Comment 215: The Palomar Observatory and the Lakeland Village/Wildomar Redevelopment Project Area Committee state that the draft EIS does not address the issue of outdoor lighting and dark skies and requests that all permanent lighting be fully shielded low-pressure sodium and comply with Riverside County's lighting ordinance.

Response: The co-applicants state that they would comply with Riverside County's lighting ordinance.

Comment 216: The city of Lake Elsinore and Riverside County state that the visual aids presented in the draft EIS are not adequate to evaluate the visual effects of transmission line placement and a comprehensive simulated visual study should be done. Linda and Martin Ridenour state that visual simulations of the aesthetic effects should be taken from Grand Avenue and should clearly show the locations of the powerhouses so that residents of Lakeland Village can understand the potential effects on their neighborhood.

Response: We have provided visual simulations of the transmission line and the powerhouse in appendix D of the final EIS.

Comment 217: Nevada Hydro comments that in the analysis of effects of project construction of the proposed transmission alignment on aesthetics the draft EIS states that over the term of any license, USFS maintenance crews would maintain a fire break below the lines and these fire breaks also would be apparent as a scar across the native vegetation. Nevada Hydro requests that the USFS identify where fire breaks should be developed and maintained. Alternatively, it requests that if fire breaks are deemed not to be beneficial, the final EIS should state that brush clearance activities should be limited to the extent feasible.

Response: While the co-applicants are not proposing to clear vegetation under the transmission line, the final EIS states that fuel management in the future may require manipulation to reduce the risk of fire. Methods selected for fuel management would depend on site-specific factors (e.g., vegetation type, slope, aspect, access), and could include grazing, prescribed fire, or mechanical means to create and maintain firebreaks. Existing firebreaks that intersect the proposed alignment would also be maintained, as needed. These issues would need to be addressed in the hazardous vegetation fuel treatment plan and the scenery conservation plan as specified by USFS in their revised preliminary 4(e) conditions under any license issued for the project.

Comment 218: The Fernandez Parties, Pacific Clay, Rancho Capistrano Property Owners Association, La Cresta Property Owners Association, and individuals state the draft EIS does not adequately identify the project's aesthetic and property valuation effects on property owners who purchased land based on the

wide open spaces and natural beauty of the region and national forest. The beauty and property values would be diminished with construction of transmission lines and towers. Pacific Clay states that the claim in the draft EIS, on page 3-232, that the effect of the staff alternative transmission line alignment on future development "cannot be determined" is not true because there are standard appraisal methodologies.

Response: In section 3.3.8.2 of the draft EIS*, Environmental Consequences***,** *Effects of Construction and Operation on Property Values and Development* (see pages 3-269 through 3-273), we discuss the potential effects of the project transmission line on property values in great detail, and indicate that various studies have shown transmission line effects on property values ranging from small positive effects to negative effects as high as 53.8 percent. We indicate that most results show a negative impact on property values of 1 to 10 percent. We maintain, however, that despite standard appraisal methods, the precise effect on future development cannot be determined except on a case-by-case basis at this time.

Comment 219: The Fernandez Parties, Pacific Clay, and Lake Elsinore Unified School District state that the draft EIS fails to consider the effects of EMFs associated with the project on residents, rare horses, and students along the transmission route. The Fernandez Parties state that the brief analysis on page 3-248 through 3-251 of the draft EIS is inadequate because the World Health Organization has stated there is "sufficient evidence" to apply a "precautionary principle" to power and electromagnetic fields. The District indicates that state school site selection guidelines limit the placement of schools near high voltage transmission lines. John Pecora is concerned regarding his family's elevated exposure to electromagnetic fields.

Response: We are aware of the World Health Organization's adoption of its precautionary principle, but stand by our analysis of electromagnetic field effects and our conclusion that the project would not have adverse effects on animals or humans in the project area. The transmission line would be far enough away from residences that any potential health effects would be minimized. Additionally, the co-applicants' proposed transmission alignment and staff alternative transmission alignment now contain longer underground segments that would reduce the risk of any potential health effect. We have revised section 3.3.8.2, *Environmental Consequences.*

Comment 220: The city of Lake Elsinore states that it appears that there has been a trade-off of 95 percent of the aquatic mitigation funds proposed by the co-applicants to partially alleviate short-term inconveniences on the Ortega Highway with the recommendation of a measure to excavate an area of Decker Canyon. The city states that this is not a thoughtful use of limited project resources set aside for environmental mitigation and that alternative mitigation measures represent a much more common sense approach to addressing the needs of commuters.

Response: Our determination of the level of funding to address aquatic mitigation has no relationship to the staff recommendation to achieve a balance of excavation to fill at the upper reservoir location. Using fill excavated at the construction would greatly reduce the volume of large truck traffic on portions of Ortega Highway and Grand Avenue during construction.

Comment 221: Rancho Capistrano Property Owners Association and Andrew and Sandra Mauthe comment that they paid for the paving of South Mountain Divide Road, which was designed as a 35 mph road and express concerns about an estimated potential increase of 400,000 cars annually on this road.

Response: We estimated the project related increase in traffic volume on South Main Divide Road to increase to 150 vehicles during the a.m. and p.m. peak travel times, which would still be well below the estimated capacity of 2,100 vehicles and maintain the same level of service. USFS preliminary 4(e) condition no. 26, *Road and Traffic Management Plan*, would address the concerns raised in this

comment. We discuss the effects of construction and operations on South Main Divide Road on pages 3-253 through 3-259 of the draft EIS.

Comment 222: Lake Elsinore Unified School District is critical of the traffic analysis in the draft EIS, stating that it did not account for the transportation of imported and excavated soil and arbitrarily divides trip generation numbers among various areas to cover different construction scenarios. It also states that the final EIS should address traffic effects in the event that the 73,750 truck loads of excavated soil cannot be used at the upper reservoir. Robert and Susan Konoske question whether truck trips to import clay have been included, whether truck trips for disposal have been included, and the effects of the construction truck trips on local traffic patterns.

Response: We based our truck trip estimates in the draft EIS on the assumption that traffic volume increases associated with construction activities would increase but not above the threshold that would drop the road's Level of Service. The truck trip estimates are for the number of trips necessary to relocate the excavated soil materials under the co-applicants' proposed construction configuration and the staff alternative. We discuss the assumptions and effects of each, including the import of clay material to line the upper reservoir between pages 3-253 and 3-259 of the draft EIS. We discuss the potential traffic effects associated with the potential transport of excavated material away from the proposed powerhouse site in the first paragraph on page 3-256 of the draft EIS.

Comment 223: Riverside County states that a comprehensive traffic study should be prepared and submitted to the County prior to finalizing the EIS so that the Transportation Department can complete its review of the EIS. Riverside County and Pacific Clay recommend a traffic management plan be developed and approved by the Riverside Country Transportation Department to accommodate truck traffic on county roads such as Grand Avenue. Riverside County also makes numerous recommendations related to road maintenance, traffic flow, light signals, road improvements, and cost sharing responsibilities. These recommendations include road pavement testing be conducted before and after construction and funding should be provided to the Transportation Department to mitigate for project effects that cause pavement deterioration; the co-applicants fund a traffic signal to be located at the adjacent major intersection of Grand Avenue and Ortega Highway; the co-applicants be required to construct truck turnouts, a truck climbing lane, and/or other safety improvements on the affected areas of the Ortega Highway; safety improvements along Grand Avenue, including shoulder widening to accommodate the truck traffic activities; and that the co-applicants contribute on a fair share basis to the Regional Transportation Network by participating in the County's Transportation Uniform Mitigation Fee program. Lake Elsinore Unified School District indicates the traffic hazards from construction traffic would be most severe on Grand Avenue with three schools and no sidewalks, forcing students to travel on the road or dirt shoulder in close proximity to vehicular traffic. Empire Pre-Cast is also concerned about increased truck traffic and safety hazards on Grand Avenue.

Response: The EIS considers the need for traffic control plans which would include among other items schedules for the volume and timing of construction traffic and long term monitoring, reporting, and changes to the plan as necessary. Based on comments received on the draft EIS, the co-applicants road and traffic management plan for non-USFS roads should be developed in consultation with the Riverside County's Transportation Department. Pre-construction monitoring and baseline condition documentation could be developed as part of the plan so as construction related effects could be separated from normal traffic effects. The co-applicants also propose to participate in the development of a traffic signal at the intersection of Grand Avenue and Ortega Highway. Further, the co-applicants also propose several specific measures to improve traffic flow on Grand Avenue and Ortega Highway during construction. The details of involvement, measures, responsibilities, and schedule would be included in the co-applicants' proposed final road and traffic management plan, which would be developed in consultation with local agencies and filed for approval with the Commission. Development of the plan prior to

construction would address the concerns of Riverside County and the Lake Elsinore Unified School District.

Comment 224: Pacific Clay, Linda and Martin Ridenour, and Robert and Susan Konoske state that the traffic counts conducted by the co-applicants were deficient since the counts only captured data from 1 day in July.

Response: Our review of California Department of Transportation (Caltran), Traffic Operations Division Traffic and Vehicle Data for Ortega Highway and Grand Avenue indicates that recorded peak hour traffic (2005) data are relatively consistent with the co-applicants' traffic study data validating our use of the study. For example the Caltrans traffic volume estimates the peak hourly traffic on Ortega Highway west of Grand Avenue (between Grand Avenue and the Riverside County line) at 1300 where as the co-applicants peak estimate for Ortega Highway west of Grand Avenue was 1252. In addition, Caltrans peak hourly estimate for Ortega Highway east of Grand Ave (between the intersection with Grand Avenue and Lake Shore Drive) at 1800 vehicles whereas the co-applicants estimated peak hourly traffic volume on Grand Avenue south of Ortega Highway at 1382. Although these two road segments are not the same segment, they do present a reasonable picture of the estimated traffic volumes on Grand Avenue in the vicinity of its intersection with Ortega Highway and in the proposed project area. As such, we feel the Caltrans data supports our use of the co-applicants traffic study. Our review of the co-applicants traffic study also indicated that the 38 trucks per hour (as shown on page 3-254 of the draft EIS) is adequate for the purposes here because this estimate was made for the highest peak hour operation on the most critical street section. Furthermore this construction volume assumes level of service (LOS) "C" is maintained, while LOS "D" would also be generally acceptable. Effects from construction would last 4 years and, with implementation of a road and traffic management plan, traffic scheduling could help alleviate these concerns. In addition we have addressed the scheduling of truck traffic relative to the traffic data on page 3-257 of the draft EIS.

Comment 225: Riverside County comments that the draft EIS states that clay may be imported from the Alberhill area but does not analyze the effects of resulting truck traffic.

Response: Contrary to Riverside County's statement, we analyze the number of truck trips necessary to transport clay for the lining of the upper reservoir on page 3-256 of the draft EIS. We analyze the air and noise pollution generated by such truck traffic in subsequent sections.

Comment 226: Linda and Martin Ridenour state that the 58-acre Ortega Oaks powerhouse would affect park and ride use that currently occurs on that vacant parcel.

Response: According to Riverside County's Transportation Commission, whose Transportation Services department oversees the local park and ride program, the 58-acre parcel at Ortega Oaks is not a formal park and ride facility (website: http://www.rctc.org/transportation/carpool.asp; accessed September 14, 2006). Therefore we do not evaluate the effects of a potential powerhouse at the site on car-pooling.

SOCIOECONOMIC RESOURCES

Comment 227: Francis Hoffman, on behalf of the Elsinore Testing of Experimental Aircraft Mechanism, indicates that the Commission staff is deliberately concealing the appearance, size, noise, and proximity of the facilities from homeowners whose property values might be affected by the proposed project.

Response: The draft EIS provides a detailed description of the proposed project facilities and discloses the potential effects on the aesthetic resources of the project area. In addition, we now have included visual simulations of the appearance of the proposed project facilities in the final EIS.

Comment 228: The city of Lake Elsinore states that the draft EIS only provides a cursory economic analysis of the potential effects of the project and a more detailed analysis is needed.

Response: The city does not indicate in its comments what other economic effects not included in the draft EIS it believes would occur. We stand by our conclusion that the most likely project economic effects would be potential effects on property values, which we discuss in detail.

Comment 229: Riverside County states that the EIS should describe mitigation measures due to effects on displaced persons from the construction of the project. It recommends that the co-applicants work directly with the Department of Public Social Services to develop plans to address this issue, prior to construction.

Response: In the case of the limited properties where residences would be razed, owners would be compensated for their property. With respect to potentially displaced persons who might be in need of social services provided by the county, the co-applicants now propose to provide relocation assistance for persons who might be displaced from rental properties. We have revised the text in section 3.3.7.2, *Environmental Consequences, Change of Land Use,* to address this point.

Comment 230: Riverside County, the Fernandez Parties, and Edwin Thorell inquire as to whether or not eminent domain would be used to acquire properties near the proposed powerhouse. Additionally, they would like to know what other mitigation measures would be proposed to reduce construction-related effects on residents. The Fernandez Parties also state that Elsinore Valley MWD does not have the right of eminent domain, so therefore the draft EIS must identify all project elements and locations that are proposed for private property and discuss alternative locations in instances where use or acquisition of the property is likely.

Response: On pages 3-269 and 3-270 of the draft EIS, we discuss the co-applicants' plans to use eminent domain authority if necessary to acquire needed property.

Comment 231: Linda and Martin Ridenour comment that the section on growth-inducing impacts states that power would be used locally, but Elsinore Valley MWD has stated publicly that the power would not be used locally and that it would go into the grid.

Response: Once power enters the grid, the electricity may be transmitted either locally or elsewhere in the region. However, we have revised the text related to growth-inducing impacts to delete the reference to local power sales.

CULTURAL RESOURCES

Comment 232: Nevada Hydro disagrees that the Area of Potential Effects (APE) includes the shoreline around Lake Elsinore to the upper limit of the zone of daily fluctuations expected from the project as stated on page 3-276 of the draft EIS because the operational range of the project is within the range of natural seasonal variations in the lake.

Response: Inclusion of an area within an APE does not mean that an undertaking would affect any or all cultural resources within that area. An APE is a hypothetical construct intended to establish a geographic framework in which there is reasonable possibility that an undertaking could affect historic properties. We included the Lake Elsinore shoreline in the APE as a starting point for analysis.

Comment 233: Nevada Hydro comments that, contrary to the information on page 3-288 in the draft EIS, no previous study, including the EIR for the Lake Elsinore Stabilization and Enhancement Program and the Corps NEPA documentation for the levee system, did any party, agency, or tribal group identify or assert that Lake Elsinore should be considered eligible for listing in the National Register or that management measures for this property should be developed. It comments that the minimum intrusion into the lake associated with the project and the cycling operation should not predicate the need for a National Register determination. Nevada Hydro agrees with the conclusion in the draft EIS that the proposed project would not likely adversely affect this potential TCP, but disagrees with the statement that there is insufficient information about the TCP to determine whether this aspect of the proposed project (construction of the intake/outlet structure) would alter any characteristics contributing to the importance or cultural value of this resource.

Response: In its March 24, 2005, comments on Nevada Hydro's draft HPMP, the USFS stated (Comment no. 22) that resource 33-11009 (Lake Elsinore) was eligible for inclusion in the National Register and that any measures to mitigate adverse effects to this resource should be developed in consultation with the USFS, Tribes, and the SHPO. The analyses on pages 3-283 and 3-284 have been revised to clarify the discussion regarding effects to Lake Elsinore as a TCP and we continue to conclude that construction of the intake/outlet structure and operation of the project would have no effect on the characteristics contributing to the National Register eligibility of Lake Elsinore as a traditional cultural property.

Comment 234: Nevada Hydro disagrees with the statement on page 3-281 that the APEs for the Evergreen powerhouse site, both the proposed and alternative transmission alignments, and the access roads remain to be surveyed. It refers the authors to the performance of cultural resource surveys contained in the draft HPMP.

Response: On page 2-3 of its draft HPMP, Nevada Hydro states that the locations of access roads from existing roads to the transmission line corridors are not yet known, leading us to conclude that no archaeological surveys have been conducted along access roads. The HPMP's description of cultural resources field studies (p. 2-4) does not specify precisely what areas were surveyed either in 1996-97 or in January 2005.

Comment 235: John and Soma Stickler raise concerns about the effects of the proposed and alternative transmission line alignments along the Cleveland National Forest in the vicinity of Tenaja would have on archaeological sites. They indicate that transmission line alternative 4 would avoid this area.

Response: The co-applicants' revised and staff alternative alignments now includes alternative 4. For all alignment alternatives, the HPMP, revised and finalized in consultation with the SHPO, Tribes, and the USFS and the Lake Elsinore Historical Society, would provide for processes to determine effects of construction and operation of transmission lines on significant archaeological sites, and to appropriately resolve any adverse effects.

Comment 236: Pacific Clay states there is no way to know the potential extent of effects on cultural resources from the staff's recommendations because no cultural resource surveys have been done since project facilities have not been sited.

Response: We recommend that the co-applicants, in consultation with the SHPO, the USFS, Tribes, and the Lake Elsinore Historical Society to conduct any additional surveys necessary to identify cultural resources in proposed locations of project facilities, determine effects of the project on such resources, and to develop and implement measures to resolve any adverse effects prior to any construction activities at those locations.

Comment 237: The Pechanga Tribe provides confidential information concerning its history in the project area.

Response: We thank the Tribe for providing this information**.**

Comment 238: The Pechanga Tribe recommends further evaluation, testing and/or avoidance at several archeological sites in the Morrell Canyon area.

Response: The co-applicants' revised and finalized HPMP would contain provisions for consultation with the Tribes regarding measures to resolve any adverse effects to these archaeological sites arising from project construction or operation**.**

Comment 239: The Pechanga Tribe requests applicable agencies consult with the Tribe in person regarding the specific locations and details of the project effects on cultural resources because the Tribe can not disclose specific details in letter.

Response: The co-applicants'' revised and finalized HPMP would contain explicit protocols through which appropriate tribal liaison would coordinate with the co-applicants, the USFS, and Commission staff regarding communication with the Tribes.

Comment 240: The Pechanga Tribe requests assessments be made according to section 106 review process and that the Pechanga Tribe be a consulting party on a government-to-government basis.

Response: The co-applicants' revised and finalized HPMP would contain measures to ensure that evaluation of cultural resources would be accomplished through application of the National Register Criteria for Evaluation and in consultation with the SHPO, the USFS, Tribes, and the Lake Elsinore Historical Society.

Comment 241: The Pechanga Tribe intends to assert its right pursuant to California law with regards to any human remains or items discovered in the course of the project in the Tribe's traditional territory and it requests that all permitting agencies work with the Tribe to draft an agreement that would address this issue. The Pechanga Tribe also requests all Luiseno cultural resources uncovered in the Tribe's traditional territory and not located on federal properties be relinquished to the Tribe for proper treatment

Response: As indicated in its draft HPMP, the co-applicants would follow applicable California law regarding discovery of human remains on state or private land. The co-applicants would also notify USFS of any such discoveries on USFS property; USFS would then be responsible for treatment and disposition under federal law. The draft HPMP also specifies that the co-applicants would consult with the Tribes regarding treatment and disposition of cultural resources of importance to the Tribes that are identified on private or state land**.**

Comment 242: The Pechanga Tribe is concerned no APEs have been set for the project tunnels and believes that the APE for the tunnel portions of the project should be reevaluated in consultation with the Tribe. It further states that wherever the HPMP notes that it would address future decisions regarding APEs or amendments, it should acknowledge that the lead agency would consult with the Tribe as well as the SHPO.

Response: The revised and finalized HPMP would provide for consultation with the Tribes as well as the SHPO and USFS regarding identification or modification of APEs**.**

Comment 243: The Pechanga Tribe states that further archeological surveys will need to be completed to meet the legal requirements for the project. It asks that it be allowed to participate in those surveys and be consulted about field and lab methodologies and how surface collections should proceed. The Pechanga Tribe further requests that culturally appropriate evaluation methods be incorporated into the HPMP and that no public interpretations are created for Native American cultural resources. The Pechanga Tribe also requests that the lead agency or its designated agent allow the Tribe to monitor all grading and ground-disturbing activities in culturally sensitive areas within the Tribe's traditional territories and tribal monitors be present during all archeological testing. It also requests that it be allowed to review and comment on any Native American monitoring plans.
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Response: We recommend that the co-applicants, in consultation with the SHPO, the USFS, Tribes, and the Lake Elsinore Historical Society to conduct any additional surveys necessary to identify cultural resources in proposed locations of project facilities, determine effects of the project on such resources, and to develop and implement measures to resolve any adverse effects prior to any construction activities at those locations**.** In the HPMP, the co-applicants have proposed to appoint a tribal liaison who would consult with the tribes regarding construction monitoring, archaeological survey, and resource protection measures.

Comment 244: The Pechanga Tribe requests the lead agency commit to avoidance and preservation of Native American sacred sites.

Response: NHPA does not require federal agencies to avoid effects to cultural resources; it requires federal agencies to consider a variety of measures to resolve adverse effects, among them avoidance, minimization or mitigation. Nevertheless, whenever possible, avoidance is always the best approach for resolving potential adverse effects to cultural resources.

Comment 245: SDG&E comments that the draft EIS does not include a discussion of an alternative substation site that may avoid impacts to cultural resources and generally does not contain any on-the-ground surveys for cultural resources. SDG&E states that the extent and significance of any cultural resources is unknown, could affect the routing of the transmission line, and should be disclosed in the EIS.

Response: The co-applicants' revised alignment now includes alternative 4 that avoids areas of archaeological sensitivity. However, the co-applicants would need to complete surveys along the final transmission alignment prior to commencing construction.

Comment 246: Ruth Atkins comments that the two most prominent historic properties in close proximity of the proposed project are the Elsinore Naval and Military Academy and the Machado Adobe. The former was never used as a club, as indicated on page 3-281 of the draft EIS, and the later was built in 1858 and, when the Butterfield Stage Line was commissioned, used as a stage coach stop. She also comments that in the area there is a marker of the tanning vats built in 1891 by the Luiseno Indians that is a California Registered Historical Landmark. She and Linda and Martin Ridenour would also like assurances that the historic properties near the Santa Rosa powerhouse site, including the naval academy building, would not be adversely affected by ground vibration during construction.

Response: We have revised the text in the final EIS to indicate that the Elsinore Naval and Military Academy property was not used as a club, although originally intended as such. Nevada Hydro's draft HPMP contains measures to address potential effects of construction-related ground vibration on significant buildings prior to initiation of heavy construction or blasting near such buildings**.**

Comment 247: Linda and Martin Ridenour state that the Lake Elsinore Historical Society and the Riverside County Office of Historic Preservation were not notified by Elsinore Valley MWD of the filing of a revised HPMP. They ask that the Lake Elsinore Historical Society be invited to participate in the HPMP.

Response: We recommend that the Lake Elsinore Historical Society be included as a consulting party to the Programmatic Agreement and will afford this organization opportunity to comment on the revised HPMP.

AIR QUALITY AND NOISE

Comment 248: Nevada Hydro comments that the LEAPS Project's ability to store generated energy, including nuclear energy produced at the San Onofre Nuclear Generating Station, results in the more efficient use of energy resources and diminishes the need construct new and operate existing fossil-fuel burning generating facilities within non-attainment basin.

Response: We agree that hydropower generation produces less air pollutant emissions compared to natural gas or coal-fuel plants. However, we find the statement about storing nuclear energy to be misleading because nuclear power is a baseload generating resource rather than being used on the margin, and is not used for pumping.

Comment 249: Nevada Hydro cites a reference on page 3-294 to the Mojave Desert Air Basin and Salton Sea Air Basin and states that it does not believe that any portion of the proposed project is located within these two air basins and questions why they are included in the draft EIS.

Response: The LEAPS Project area is located principally within the South Coast Air Basin which is in Riverside County; however, the proposed transmission alignments extend to Orange and San Diego Counties. Riverside County is partitioned into three air basins: South Coast Air Basin, Salton Sea Air Basin, and Mojave Desert Air Basin. According to CARB, an air basin generally follows political boundary lines and is defined to include both source areas and receptor areas. However, because air masses can move freely from basin to basin, interbasin transport of pollutants is unavoidable. It is for this reason that the Mojave Desert Basin and Salton Sea Air Basin were included in the EIS.

Comment 250: Nevada Hydro points out that the San Mateo Wilderness Areas should be included in the list on page 3-302 of areas located within 100 kilometers of a federal Class I area.

Response: We have added the San Mateo Wilderness Area to the list of areas located within 100 kilometers of a Federal Class I area in the final EIS.

Comment 251: Nevada Hydro provides updated information about the state of California laws pertaining to air emissions and provides an exhibit (Exhibit 4 in the April 25, 2006 filing) the compares LEAPS to other generation technologies for ancillary services and RMR value. It requests that the final EIS augment the existing air quality analysis to describe the beneficial effects of the LEAPS Project. It requests that the final EIS also include an analysis of the project's compliance with the general conformity rule (40 CFR Part 51, Subpart W, and 40 CFR Part 93, Subpart B).

Response: We have included information on beneficial effects of the LEAPS Project in the final EIS. As described in section 3.3.10.2 of the draft EIS, the general conformity rule applies to federal actions in non-attainment areas. The LEAPS Project is located in Riverside County, but the proposed transmission alignments extend to Orange and San Diego Counties. The air basins in these three counties are classified as attainment for NO_x, SO_2 and CO, and non-attainment for Ozone and $PM_{10}/PM_{2.5}$. Therefore, a

conformity determination would only be applicable for Ozone (NO_x/VOCs being the pre-cursors) and PM_{10}/$PM_{2.5}$. An emission estimate including construction worker's commutes, construction equipment and use of delivery, hauling and work trucks in pounds per day per pollutant has been included in the EIS as presented in Tables 36 and Table 37. These values can be converted into tons/year based on the expected amount of project days/year and compared with *de minimus* levels in order to make a conformity determination and comply with the general conformity rule. Based upon the proposed construction schedule, it is anticipated that these values could exceed the *de minimus* levels and be applicable to conformity requirements. However, these values are less than the SCAQMD "significant thresholds" for construction activities. Therefore, none of these activities are anticipated to have a significant effect on the surrounding air quality and additional mitigation would likely not be required. A preliminary conformity analysis will be completed prior to the issuance of any license for the proposed project.

Comment 252: EPA states the draft EIS does not include mitigation measures to minimize air pollutant emissions from project activities. It recommends the following measures to minimize construction emissions at the reservoir site, the powerhouse site, and along the transmission lines: (1) consult with the South Coast Air Quality Management District and prepare a fugitive dust mitigation plan; and, (2) develop and implement a plan complying with best practices for mitigating exhaust emissions from construction equipment and evaluate the feasibility of measures to reduce construction emissions.

Response: We have addressed the need for fugitive dust mitigation in the final EIS. If a license is issued for the proposed project, we recommend that the licensees consult with South Coast AQMD to comply with best practices for mitigating exhaust emissions from construction equipment and evaluate the feasibility of measures to reduce construction emissions.

Comment 253: The Center for Biological Diversity comments that the significance of exceedances of carbon monoxide, particulate matter, and ozone standards in the project area and the potential effects of the construction and operation of the project relative to these standards is not addressed in the draft EIS. It states that the draft EIS must fully discuss the proposed project's production of ozone precursor emissions and particulate matter, and the direct, indirect, and cumulative impact both on human health and on vegetation and wildlife habitat, especially for threatened and endangered species.

Response: We discuss the air emissions and fugitive dust that could be generated by the construction and operation of the proposed project relative to the appropriate standards and thresholds in section 3.3.10.3 of the draft EIS and conclude that air emissions and fugitive dust would not exceed the current significance thresholds.

Comment 254: Lake Elsinore Unified School District indicates that blasting could present a public safety risk and affect the learning environment at schools in the project area. It recommends the final EIS include a detailed disclosure of planned blasting activities, anticipated environmental effects, and appropriate mitigation measures. Lake Elsinore Unified School District also is critical of the fugitive dust discussion in the draft EIS and states that the final EIS should include a greater analysis of local air quality effects created by construction activities in the immediate vicinity of the project. It also states that localized effects should be analyzed and schools viewed as sensitive receptors. John Pecora is also concerned about the effects of dust on his family and home.

Response: We address fugitive dust in section 3.3.10.3 of the draft EIS and have added information about the potential effects of blasting. If licensed, we would require the licensee to comply with local and state laws to control fugitive dust and noise from blasting.

Comment 255: Pacific Clay and Lake Elsinore Unified School District are critical that the draft EIS does not recommend any mitigation for the potential release of smelly gasses into the atmosphere which could

affect distant communities and individuals who commute along Ortega Highway daily. Linda and Martin Ridenour request CARB data to support staff's statements that gases released from the lakebed during construction are not expected to be toxic.

Response: We do not expect that large quantities of smelly gases would be emitted from the lakebed during construction. Mitigation recommendations for any of these gases which could potentially affect distant communities and individuals commuting along the Ortega highway would be taken if it is determined that there may be a significant impact on these areas.

Comment 256: Linda and Martin Ridenour state that the discussion of state and national area designations in the draft EIS is hard to read. They request a clear statement in the final EIS about whether the city of Lake Elsinore has air quality problems and whether the project-related emissions are considered significant under NEPA and CEPA.

To control air emissions they recommend compliance with SCAQMD rules governing low sulfur fuels and use of filter traps on truck tailpipes. To control dust they recommend the use of non-potable water to control dust, that all haul truck be covered, 2 feet of freeboard be left between the top of the load and the top of the trail bed, and that construction be halted when wind speeds reach 25 miles per hours in order to reduce the amount of dust released into the air.

Response: As noted in our response to comment 252, we address fugitive dust in section 3.3.10.3 of the draft EIS and have added information about the potential effects of blasting. If licensed, the co-applicants would comply with local and state air emissions rules and regulations including those to control sulfur levels, fugitive dust, and noise from blasting.

Comment 257: Lake Elsinore Unified School District is critical of the noise discussion in the draft EIS and should consider the effects of construction noise and truck traffic on schools including taking the school schedule into account.

Response: The noise analysis presented in the EIS does consider and evaluate project-related impacts from construction and operational activities. As part of the construction impact analysis, noise from truck traffic and mobile/stationary equipment noise were examined. Both morning and afternoon peak traffic conditions were considered. The results of the analysis show that construction traffic would not result in significant noise impacts. Rock drilling activity may generate loud noises during early stages of the construction, but would be substantially attenuated when the excavation goes deep into the ground. Mitigation measures, if required, would be employed to ensure conformance with applicable City or County noise codes.

Comment 258: La Cresta Property Owners Association and John Pecora inquire about how the effect of a constant loud humming noise from the transmission lines on residents would be mitigated.

Response: The nearest residential sensitive land uses are at distances of 100 feet or more from the proposed transmission alignment. However, the effect of a humming noise from the transmission lines on residents would be minimal because the intensity of noise in decibels (dBA) would be attenuated over distance. The “hum”, also referred to as “low frequency sound”, is not clearly defined but is generally considered as noise at frequencies below 150 Hz. Exposure to low frequency noise at low intensity noise levels resulting from distance attenuation loses would not be noticed by most receptors as humans are less sensitive to these tonal sounds. Section 3.3.7.2 of the EIS describes precautionary measures that will be undertaken during construction of the power lines to help protect humans from uncertain risks

Comments 259: Linda and Martin Ridenour request information on the effects of the use of helicopters to install transmission lines on noise quality in the project area. They inquire about the echo effect from living on the mountain. They state that much of the description in the *Affected Environment* is unclear. For instance, is the noise environment of Lake Elsinore describing the noise in the city of Lake Elsinore or on the lake? What does "except at locations affected by transportation, recreation, and industrial sources" mean?

Response: The use of helicopters to install the transmission lines would be temporary in nature. As a result, the impacts on noise quality in the project area are not anticipated to be significant. The Ldn noise descriptor is commonly used to monitor the anticipated increase in the ambient noise levels within the community. Construction activity will be monitored to ensure conformance with applicable local government regulations, including the 60 Ldn recommended in city of Lake Elsinore General Plan. Noise (sound waves) traveling in a direct path to the Santa Ana Mountains may reflect back toward the residential community; however, the sound wave energy intensity would be very much reduced due to transmission loses anticipated as it passes through the mountainous terrain. In addition, any reflected sound wave would be further attenuated over distance and thus would not significantly impact the residential sensitive land uses. The noise environment in city of Lake Elsinore is generally typical of a rural setting (e.g., 47 to 57 dBAs); however, elevated noise levels may be experienced during the daytime at locations influenced by vehicle traffic on Interstate-15 and the arterials roads servicing the community, intermittent power boat and jet ski activities, and aircraft operations from the Skylark Airstrip.

Comment 260: Linda and Martin Ridenour point out that there are more sensitive land uses than described in the draft EIS, including Lakeside High School, a soon to be opened Middle School, and Butterfield School, four churches in Lakeland Village, a ball park, and Perret Park.

Response: The noise impact analysis presented in section 3.3.10, *Air Quality and Noise*, only considers the nearest sensitive land uses that may be impacted by noise-producing activity associated with the proposed and alternative actions. As such, it was considered to be the worst-case scenario. If no significant impacts were anticipated from this worse-case evaluation, it is reasonable to conclude there would be no significant impacts for sensitive land uses located at further distances from the project-related noise sources. A list of the sensitive land uses is provided in figures 16 and 18 in section 3.3.6 under the subtitles Recreational Resources and Land Use and Aesthetic Resources; respectively. There are other sensitive land uses further north, east and west of the proposed powerhouse sites, including Lakeside High School located on Riverside Drive. We have revised the text in section 3.3.10 to recognize these other receptors.

DEVELOPMENTAL ANALYSIS

Comment 261: Nevada Hydro provides a cost estimate of $5 million per mile for 500-kV gas-insulated lines as quoted by Seimens Power Transmission & Distribution Inc., and that the projected cost for placing a 1.5 mile segment of the transmission line underground would be less than $10 million.

Response: We have considered your cost estimate in our developmental analysis.

Comment 262: SDG&E comments that the draft EIS cost estimate is low and does not fully account for the current level of 500-kV construction costs. It cites recent substantial changes in the cost of steel and a shortage of skilled labor in the construction of high-voltage electric transmission. SDG&E questions the economic benefits of operating the project and asks that the final EIS include an explanation of the methodology used to determine the number of hours and time periods during the typical week in which the Proposed Project was assumed to be in a pumping mode. SDG&E also notes that table note "a" in

table 48 conflicts with the information in table 47 concerning when pumping hours would occur. Finally, SD&E comments that use of a single typical week is unlikely to be representative of the varied system conditions that occur throughout the year and recommend an hour-by-hour simulation of the facility for a full year using actual hourly market clearing prices for energy in southern California from a recent year, accounting for the storage capacity of the upper reservoir and incorporating the pumping/generation efficiency loss. The final EIS should acknowledge that any simulation would likely overstate the benefits.

Response: We added a significant contingency to the co-applicants' costs in the final EIS reflecting some of this uncertainty. We have corrected footnote a on table 48, *Summary of Projected Annual Costs and Capital Costs under the Co-Applicants' Proposal*, to read "Pumping energy is based on average energy values at SP-15 for August 2004 through July 2005 assuming pumping during all off peak hours (10 p.m. through 6 a.m., Monday through Friday) and assumed additional pumping operations during 16 hours (four hours Monday through Thursday) of regular peak hours in the final EIS.

Comment 263: SDG&E requests that the statement on page 4-30 the TE/VS transmission line would provide "wheeling" benefits to regional utilities, and any other reference to "wheeling," be deleted because under the cost recovery regime proposed by the co-applicants in their March 20, 2006, additional information response, the operational control of the TE/VS transmission would be turned over to the California Independent System Operator Corporation.

Response: We have deleted the reference to wheeling in section 4.6.

Comment 264: SDG&E suggests that table 52 and the associated discussion be deleted from the final EIS, also citing the March 20, 2006, filing by the co-applicants.

Response: We note the March 20, 2006, filing was by Nevada Hydro under a separate proceeding and was later withdrawn from the LEAPS Project proceeding; however, we consider it important to evaluate the incremental cost of key project components such as the pumped storage element and continue to evaluate the economics of the LEAPS Project both as stand-alone project and in combination with the TE/VS Interconnection.

Comment 265: Mr. Pinnow provides an analysis of whether the LEAPS Project makes sense from an economic point of view. He comments that the assumption in table 42 that the return on equity rate for investors of 12 percent would be impossible to achieve without subsidization from California rate payers. He questions whether the $40.00/MWh for off-peak energy value south of path 15 includes the power transportation costs to get power to the LEAPS plant. If not, the final EIS should include this cost. He asks that information about the gross annual profit of the stand-alone pumped storage project be presented in the final EIS. He also concludes that there is insufficient information in the draft EIS to determine if the pumped storage facility in combination with the proposed transmission line would result in a net benefit to rate payers. He asks why the economics for the transmission line have not been included in the draft EIS for public review.

Response: Since the Mead Decision of 1995, the Commission no longer evaluates the internal rate of return for a project and leaves the financials analysis and risk in the hands of the co-applicants. Typically, in order to obtain bonds or other financing, an applicant must have an independent engineer certify the economics and feasibility of the project to move forward and procure financing. We do not typically evaluate profits associated with any project; however, we continue to present the annualized costs, benefits and net benefits for both the stand-alone pumped storage project and the combined transmission line and pumped storage project. Transmission benefits in the final EIS are based on additional information provided by the co-applicants in their comments on the draft EIS.

Comment 266: Mr. Pinnow provides cost estimates for underground cable (cost of cable and installation) through the Cleveland National Forest of about $157 million based on current technologies including the use of tight polymer insulation jackets rather than oil-filled jackets and recommends that underground technology be used for any transmission cable routed through the Cleveland National Forest.

Response: We have reviewed Mr. Pinnow's and other cost estimates for underground transmission cables and have lowered our estimate accordingly.

Comment 267: Mr. Pinnow comments that the configuration of transmitting the power from the LEAPS Project to the TE/VS transmission line must be modified to be brought into conformance with section 71663.5(b) of the California Water Code that requires that any electrical power generated within a water district be used within the district for its own purpose and that only surplus power may be sold over the high voltage transmission line. He asks that the cost of any reconfiguration be included in the final EIS.

Response: The co-applicants are required to comply with state laws and regulations.

Comment 268: Mr. Pinnow comments that neither the LEAPS Project nor the TE/VS transmission line can be considered reliability must run (RMR) resource because this term is limited to power plants that are available to run hours per day for 7 days per week. He comments that the LEAPS Project would not meet this definition and instead should be categorized under the default qualifying capacity criteria under section 40.13.2 of the CAISO tariff language. He questions whether any RMR value is ascribed to the LEAPS Project in the draft EIS.

Response: We did not explicitly consider RMR benefits in conducting our benefits analysis. We noted that pumped storage includes many ancillary benefits and included both a higher energy cost during super peak hours and a dependable capacity benefit in our economic approach. We did review CAISO's RMR units and note that PG&E's Helms Pumped Storage Project units are included as RMR units.

Comment 269: Francis Hoffman, on behalf of the Elsinore Testing of Experimental Aircraft Mechanism, disagrees with Commission staff that sufficient costs for eminent domain are provided in the co-applicants' proposal. Douglas Pinnow, Edith Stafford, and Linda and Martin Ridenour point out that Elsinore Valley MWD does not have the power of eminent domain to acquire property for the LEAPS Project as assumed in the draft EIS. Rather, Elsinore Valley MWD must acquire property by direct negotiation with each affected property owner in accordance with section 71663.5(d) in the California Water Code. Mr. Smith indicate that his parcel in the La Cresta area would need to taken by eminent domain should the project proceed and questions whether costs associated with eminent domain proceeding have been included in the cost estimates in the draft EIS. Pacific Clay states that the construction budget in the draft EIS is not large enough to have included costs for involuntary acquisition of the necessary properties. Edwin Thorell notes that measure 64, the acquisition of property though purchase of fee simple or through lease by voluntary sale, has a 0 cost in the measure table. He states that the failure to address the costs of property acquisition increases the cost of the project beyond the $931 million construction cost indicated.

Response: We have modified the cost associated with property acquisition and reflect those changes in section 4 of the final EIS.

Comment 270: Francis Hoffman, on behalf of the Elsinore Testing of Experimental Aircraft Mechanism, states that there are no costs included to provide an alternative landing zone during construction.

Response: The co-applicants propose to provide funds for an appropriate landing zone if the Commission selected the Ortega Oaks powerhouse site. Both the co-applicants' proposal and the staff recommended alternative would site the powerhouse at the Santa Rosa location. Construction of the underground powerhouse at the Santa Rosa location would not disrupt the continued use of the landing zone at Ortega Oaks.

STAFF CONCLUSIONS

Comment 271: Nevada Hydro comments that the staff conclusions on page 5-5 of the draft EIS that the co-applicants' proposed transmission alignment could interfere with USFS fire suppression activities and that staff alternative mid-slope transmission line would avoid interference with USFS fire fighting suppression activities is a mischaracterization of the of the two alternatives. It points out that both alignments would traverse plant communities with similar fuel loading characteristics and that because the staff alternative mid-slope alignment is 1.2 miles longer, it would produce incrementally more effects. Further, Nevada Hydro requests the presence of beneficial impacts, such as the availability of an upper reservoir as a source of water for fire fighting as well as the additional potable water that the co-applicants would provide to the Rancho Capistrano area.

Response: We have revised the staff alternative transmission alignment to include an underground segment in the vicinity of the launch sites and for the connection to the Santa Rosa powerhouse. The use of underground lines in these two locations reduces interference with fire suppression activities.

Comment 272: Nevada Hydro notes that the draft EIS on page 3-189 states that recreational use during 2001 within the Cleveland National Forest was estimated at 790,000 visits. It comments that in that context, with an estimated 500 users per year that it may not be accurate to state that hang gliding is a very popular activity in Lake Elsinore on page 5-32).

Response: We agree that 500 hang gliding users per year is a small percentage of the overall visitation at Cleveland National Forest. However, we find that Lake Elsinore is a unique and popular destination for hang gliders. We have revised the text in section 5.2.8 to read that Lake Elsinore is a very popular and unique location for hang gliding.

Comment 273: Nevada Hydro requests the factual documentation, other than the suggestion by Mike Hilberath, for the need for a 12-acre landing area. It points out that a 12-acre area would constitute 20 percent of the 58-acre Ortega Oaks powerhouse site and request clarification of why a well-planned 5-acre landing area, as now proposed by the co-applicants, would be inadequate.

Response: We have revised the staff recommended alternative in the final EIS to include a powerhouse at the Santa Rosa location. Since the provision of the co-applicants' 5-acre or the staff's 12-acre landing site was tied to selection of the Ortega Oaks location for the powerhouse, we no longer include this measure in the staff alternative.

Comment 274: Nevada Hydro disagrees with the staff conclusion on page 5-34 that co-applicants should provide O&M funding for developed sites if such funding is not available the intended sources.

Response: Nevada Hydro proposed to provide recreational amenities as part of its proposed environmental measures for the licensing of the LEAPS Project. Therefore, O&M for ongoing maintenance of project-related recreational facilities would be appropriate.

Comment 275: Nevada Hydro disagrees with the staff conclusion on page 5-36 of the draft EIS that long-term monitoring, reporting, and changes are necessary provisions of the road and traffic management plan because there would only be limited number of employees once the construction period had ended.

Response: We concluded in section 3.3.7.2 that operation of the project with its limited number of employees and limited recreational use would have minor effects on local traffic on Grand Avenue. We have revised section 5.6 of the final EIS to make clear our intention that the majority of effects on local roads would result from project construction activities. Therefore, the monitoring, reporting, and changes to the non- USFS road and traffic management plan be confined to the project construction period. We recommend that the co-applicants consult with USFS as part of the road and traffic management plan for USFS roads on responsibilities for post-construction road maintenance resulting any increase in project-related road use to access project-related recreational facilities.

Comment 276: EPA recommends the final EIS describe the monitoring and reporting that would be required of the co-applicants, identify all terms and conditions of the FERC license related to the monitoring requirements, and discuss all implementation and effectiveness monitoring that would be conducted by the appropriate agencies.

Response: We have added text to section 5 of the final EIS to provide more guidance on the monitoring activities.

Comment 277: SDG&E questions the conclusion that the TE/VS transmission line could provide 1,000 MW of import capability into the San Diego area. SDG&E requests that the final EIS either cite studies that support the 1,000-MW increase in import capability or acknowledge the uncertainty surrounding this number and that a lower number would necessarily mean reduced benefits for customers.

Response: We have reviewed the available system studies and acknowledge the uncertainty surrounding a 1000 MW increase in import capability. The final EIS now uses a value of 750 MW (testimony of L.P. Brown, Long-Term Resource Plan of SDG&E July 9, 2004)

CUMULATIVE EFFECTS ANALYSIS

Comment 278: The Center for Biological Diversity comments that the draft EIS does not include an adequate cumulative effects analysis on water, soil, and biological resources in the project planning area.

Response: In response to your comment, we have added information about several other regional activities, including the Special Area Management Plan, to the appropriate *Cumulative Effects* sections.

APPENDIX B

Comment 279: Mr. Pinnow points out that the statement on page B-13 "A new 30-mile-long, 500-kV transmission line with an approximate 1,000 MW rating" is inconsistent with the capacity information shown graphically on page B-10 and with notice of the application that states that the TE/VS transmission line is to transmit and manage grid flow of approximately 1,600 MW of electricity.

Response: We agree that the information on pages B-10 and B-13 is inconsistent. The LEAPS Project transmission line is being proposed as having a maximum thermal rating of 1,600 MW. This is the maximum power that can flow over the line due to the thermal limitations of the substation equipment associated with it and to the possibility of it violating National Electric Code (NEC) minimum ground clearances due to excessive conductor sag. A line's rating is almost always higher than its expected

loading. We have revised the text on page B-13 to clarify that the proposed 32-mile 500 kV line has a 1,600 MW rating.

COMMENTS ON THE PUBLIC NOTICE OF OCTOBER 3, 2006 FOR THE REVISED PROPOSES AND STAFF ALTERNATIVE TRANSMISSION ALIGNMENTS

On October 3, 2006, the Commission issued a public notice to landowners of property crossed by or near either the proposed or alternative routes for the transmission line and other interested parties to the proceeding. The maps attached to this notice showed two transmission alignments: (1) the co-applicants' current proposal, modified in response to staff's draft EIS and filed with the Commission on June 12, 2006; and (2) the staff alternative alignment being considered for the final EIS. The notice invited comments within 30 days of the date of the letter. The following entities filed comments in reply to this public notice:

Entity	Date
Roy Salameh	October 11, 2006
John and Vera Kalachian	October 12, 2006
Theordore and Katie Miller	October 18, 2006
San Bernardino Valley Audubon Society	October 18, 2006
John Willet	October 23, 2006
Christopher Wills	October 25, 2006
Michael Hilberath	October 31, 2006
Bryan Groth	October 31, 2006
Richard and Victoria Bogard	October 31, 2006
Fieldstone Communities	November 1, 2006
Sycamore Creek Homeowners Association	November 1, 2006
Harvey and Lucy Miles	November 2, 2006
Katy Miles	November 2, 2006
Orba Smith	November 2, 2006
Christopher Oates	November 2, 2006
Lois Nosporic	November 2, 2006
Matthew Miles	November 2, 2006
Sandra Weaver	November 2, 2006
Fernandez Parties	November 2, 2006
Jacqueline Ayer	November 2, 2006
James Diamond	November 2, 2006
Sharon West	November 2, 2006
Pacific Clay Products	November 2, 2006
Cheri Phelps	November 3, 2006
Sycamore Creek Marketplace, LLC	November 3, 2006
Center for Biological Diversity and Sierra Club	November 3, 2006

Entity	Date
City of Lake Elsinore	November 3, 2006
County of Riverside	November 3, 2006
Bridgette Moore	November 6, 2006
Ellen Hazinski	November 7, 2006
John Hazinski	November 7, 2006
Marty Kreisler	November 7, 2006
Edwin Thorell	November 7, 2006
Michelle Randall	November 8, 2006

In additional 47 individuals file a form letter in opposition to the proposed transmission alignment expressing concerns about the proposed and alternative transmission lines will run along the border of the Glen Eden community. They cite the potential effect of the construction and operation of the line on the health and beauty of the Glen Eden Sun Club community. They state that the proposed transmission line will mar the landscape, run directly through a wildlife corridor, and destroy the area's vegetation and wildlife. They also comment that the draft EIS makes no reference to the Glen Eden Sun Club community. Using the same form letter, another 20 individuals and the Sycamore Creek Homeowners Association expressed similar concerns about the effects of the proposed LEAPS Project transmission lines on the health and beauty of the Sycamore Creek community.

We have summarized and responded to any new issues raised in the above letters. We have not summarized issued that have already been addressed in the responses to comments on the draft EIS.

PROCEDURAL

Comment 280: The Center for Biological Diversity comments on the co-applicants' alternative 4(e) condition no. 5, indicating that the suggested new language concerning the co-applicants' right to a hearing and to propose alternative 4(e) conditions is unnecessary as the applicable regulations already provide for this.

Response: The USFS revised preliminary 4(e) condition no. 5 does not include the co-applicants' suggested language. The revised USFS preliminary 4(e) conditions are found in appendix C to this final EIS.

Comment 281: The Center for Biological Diversity and Sierra Club comment that the draft EIS does not include sufficient information to evaluate the environmental effects of placing the transmission line underground in the Cleveland National Forest.

Response: We did not consider placing lines underground in the alternatives presented in the draft EIS. We eliminated the underground alternatives based on cost; therefore, we did not discuss the effects of placing the transmission lines underground construction on environmental resources. However, we disclose the effects of placing segments of the transmission alignments underground on the environmental resources in the final EIS.

Comment 282: The Phillips Development Company reports that it did not receive notification of the modified transmission alignment even though its properties are within 0.25 mile of the proposed alternative alignments. According to Phillips Development Company, parcel number 125-120-38 as shown on the map included with the public notice is incorrect. The map should show two properties—

125-120-38 on the west side and 125-120-37 on the east side—adjacent to parcel number 125-120-004. The new alignments would be in closer to private property owners with El Cariso Village. The Company is also concerned about the possibility of a 3,500-foot-wide Federal Energy Corridor that could allow more than just electrical transmission lines.

Response: We obtained parcel information from the Elsinore Valley MWD and made a good faith effort to notify every property owner within 0.25 mile of the two transmission alignments being considered in the final EIS. The parcel information available to us did not show parcel 125-120-37. This proceeding is not considering the TE/VS Interconnect as a Federal Energy Corridor.

Comment 283: Jacqueline Ayer comments that when transmission alignments are substantially relocated that the lead Federal agency is required to re-evaluate all of the environmental impacts. In the case of the TE/VS Interconnect a new analysis of land use impacts is warranted. She states that existing develop densities in areas such as El Cariso Village are as high as 5 dwelling units per acre, which, is 100 times more than the .05 dwelling units acre cited on page 3-273 of the draft EIS.

Response: The effects of the new transmission alignments on land use and other environmental resources are disclosed in the final EIS. Our characterization of densities ranging from 5- to 20-acre minimum lot size in the rural areas in the draft EIS is correct; however we have added language to section 3.3.7.2 of the final EIS to indicate that some of these areas, such as El Cariso Village, may be rezoned for development at much great densities. Nowhere in the draft EIS do we cite .05 dwellings per acres in rural areas

Comment 284: Ms. Ayer comments that the potential effect of the new transmission alignments would be devastating to property values and that the draft EIS trivializes property value impacts.

Response: We provide considerable discussion in section 3.3.8.2 of the draft and final EIS about the affects of transmission lines on property values, citing numerous studies on the potential effect of transmission lines on property values.

Comment 285: Ms. Ayer states that the NEPA analysis is improperly deferred commenting that the deferral of specific plans to address environmental impacts is inconsistent with NEPA requirements. For instance, she notes that traffic concerns would be addressed in the traffic and management control plan that would be developed after the project is licensed. She also states that the co-applicants are sidestepping any obligation to mitigate impacts to local roads during project construction.

Response: With regard to traffic impacts, the traffic and management control plan would be developed prior to construction and would be implemented before the construction and operation of the project. This plan would be developed in consultation with the appropriate local agencies and would address the co-applicants' obligations for pavement repair during and following construction. Our responses to comments 3 through 13 above address concerns about the statement of purpose and need in the EIS.

Comment 286: Ms. Ayer comments that contrary to the statement in section 2 of the draft EIS the pumped storage project would depend on fossil fuels.

Response: We agree that the pumped storage project would depend on fossil fuels unless the co-applicants are successful in obtaining power sales agreements for geothermal, wind, or other non-fossil based sources of energy and have revised the text in section 2 of the final EIS accordingly.

Comment 287: Ms. Ayer comments that the draft EIS insists that the LEAPS Project and TE/SV Interconnect are stand alone projects and that the draft EIS focuses on the LEAPS Project and does not address the TE/SV Interconnect in any substantial detail.

Response: We consider the LEAPS Project to consist of the co-applicants' proposal for a pumped storage facility and associated transmission lines. The draft and final EIS disclose the effects of the proposed and alternative project configurations including the effects of the proposed 32 miles of transmission lines on environmental resources. We note that a substantial amount of the analysis in the EIS pertains to ground-disturbing activities, land use, and aesthetics associated with the construction and operation of the transmission line. An effect analysis for the co-applicants' and staff alternative transmission alignments is carried through each environmental resource area addressed in the EIS.

Comment 288: Ms. Ayers comments that the draft EIS fails to identify reasonably foreseeable cumulative effects associated with the potential designation of a 3,500-foot-wide TE/SV corridor as a Federal Energy Corridor under the Energy Policy Act of 2005.

Response: The Commission has not taken any action on the designation of the TE/SV line corridor and we have no action against which to evaluate cumulative effects.

Comment 289: Ms. Ayer raises numerous other issues about the scope and adequacy of the draft EIS including her views that the no-project (action) analysis is flawed and the final EIS should consider additional no-action alternatives, that the discussion of FERC's licensing authority is faulty, that Elsinore Valley MWD does not have eminent domain authority, and that the economics of the new alignments are not justified.

Response: As discussed in response to comment 53 above, the draft and final EIS include a sufficient level of detail to assess the potential effects of the proposed project on environmental resources in the project area. We address eminent domain authority in our response to comment 50 above. In appendix B, we address previous studies of proposed transmission systems in southern California and note that these studies do not address some of the strategic benefits (reliability, load diversity, fuel diversity, access to lower cost power plants, firm power purchase, economy energy and surplus hydropower purchases, power exchange, and reserve sharing) which could improve the economics of an interconnection project, especially when combined with pumped storage capacity. We continue to conclude that the power from the LEAPS Project would be useful in meeting part of the regional need for on-peak power and that the TV/SE Interconnect Project would be an appropriate long-term solution to southern California's transmission congestion and transmission-constrained, generation-deficient San Diego area.

LAND USE

Comment 290: The Center for Biological Diversity and the Fernandez Parties comment that the September 2006 decision in the California v. U.S. Department of Agriculture (N.D. Ca. Case No. C05-03508 EDL) reinstated the Roadless Area Conservation Rule (66 FR 3,244 (January 12, 2001). This rule disallows any road construction and reconstruction, subject to certain limited exceptions, in Inventoried Roadless Areas. This would apply to the Wildhorse/Morrell Inventoried Roadless Area and this must be disclosed in the final EIS.

Response: As noted in our response to comment 210, according to the current Cleveland National Forest Land Management Plan, the areas of the forest where Morrell and Decker reservoirs are proposed is designated as an Inventoried Roadless Area that allows consideration for road construction or reconstruction. Contrary to the Center for Biological Diversity's claims, the Final Land Management Plan does not specify a Wildhorse Inventoried Roadless Area. Therefore the cited court decision does not apply.

Comment 291: Mr. and Mrs. Hazinski and Mr. Kreisler, residents of Horsethief Canyon, comment that the proposed transmission line would cross Temescal Valley, west of Horsethief Canyon, over and adjacent to proposed residential projects recreation areas, and a shopping center on the Sycamore Creek property. They had been led to believe that any project transmission lines located within one mile of residential communities would be underground. They specifically recommend that the transmission line be placed underground for about 2 miles between parcel #391210014 extending north under Interstate 15 and the proposed northern substation. Ms. Randall objects to the placement of above ground transmission lines. She recommends placing the line underground between the Glen Eden Sun Club and the planned Sycamore Creek residential community and asks that costs associated with an additional 2-mile underground segment in this area be included in the final EIS. The Sycamore Creek Marketplace, LLC, objects to the location of the co-applicants' proposed and staff alternative transmission alignments due the proximity to a planned residential developments. The owner request the location of the proposed transmission line be a minimum of one mile away from the boundary of the Sycamore Creek development and that the towers be at least one and one half miles away from the Sycamore Creek property. The Fernandez Parties, Orba Smith and numerous other individuals continue to oppose the project and also request consideration of additional underground segments in areas near residential developments.

Response: The co-applicants do not propose to place transmission lines underground within 1 mile of residential communities. The draft EIS considered but eliminated from detailed study installation of underground lines based on costs. In the final EIS, both the co-applicants' proposed transmission alignment and the staff alternative transmission alignment include underground segments in the vicinity of the launch areas along South Main Divide Road and the powerhouse. We include the costs associated with additional underground segments in the final EIS.

Comment 292: Mr. Hazinski reports that the co-applicants' modified transmission alignment ensures that the line would not be built within a mile of the Horsethief Canyon community north of the city. He states that the Elsinore Valley MWD secured a guarantee from Nevada Hydro that if it were to go within a mile of the community, that section would go underground (The Californian, October 5, 2006). He comments that this discriminates against landowners with private wells outside of the water district. He suggests that a more appropriate route would be along Lake Street and Temescal Canyon Road

Response: The license application and subsequent filings by the co-applicants made no reference to a commitment made by either applicant to place transmission lines underground within 1 mile of the Horsethief Canyon community. We have considered the environmental effects of the proposed transmission line relative to all parcels regardless of whether they are located within or outside of the water district's jurisdiction.

Comment 293: The city of Lake Elsinore and Pacific Clay products state that on balance the co-applicants' modified transmission alignment is preferred because it results in lesser visual impacts on the Lake Elsinore community and adjacent residents, but the city would also support the staff alternative transmission alignment as long as the underground segment to the powerhouse is included.

Response: In the final EIS, we include the underground segment from the vicinity of South Main Divide Road to the powerhouse in the staff alternative transmission alignment.

Comment 294: The San Bernardino Valley Audubon Society indicates that while putting the entire transmission line underground would protect raptors it would also foster the growth of non-native plants. It comments that the notice implies that Morrell Canyon has been selected over Decker Canyon.

Response: The maps included with the notice for the two transmission lines being considered for discussion in the final EIS contain legends that show underground segments of several miles. We do not

propose to place the entire 32-mile transmission line underground. We note that the staff alternative in the final EIS still includes an upper reservoir at Decker Canyon.

Comment 295: The Fieldstone Company states that it did not comment on the LEAPS Project before because it recognizes the need for growth must be balance with the imperative for safe and environmentally sound energy. Fieldstone recommends that the Commission reconsider the mid-slope alternative as being more environmentally sensitive than the modified staff alternative and having the least impact to existing residential developments. Fieldstone comments that the draft EIS failed to review the contents of the County of Riverside General Plan, which would be greatly impacted by the co-applicants' modified transmission and the two alignments being considering for the final EIS. Fieldstone comments that only the mid-slope alignment avoids the impacts to approved residential communities.

Response: We have reviewed the merits of the mid-slope transmission alignment and concluded that its close proximity to private properties, including two large residential developments in Horsethief Canyon and interference with hang gliding activities created more adverse effects than the revised staff alternative alignment. We did review the County of Riverside General Plan in the draft EIS and reviewed it in relation to the revised staff alternative alignment in the final EIS and conclude that the our revised alternative would have less effect overall on residential communities and would significantly reduce effects on hang gliding activities at Lake Elsinore.

Comment 296: Fieldstone states that the draft EIS omits consideration of the Riverside Multi-Species Habitat Conservation Plan approved by the FWS. It comments that the northern segment of the co-applicants' alignment and the new alignments would adversely impact a significant wildlife corridor.

Response: We addressed, in section 3.3.4.2 of the draft EIS, the potential effects of the proposed project of wildlife corridors identified in the Western Riverside County Multi-Species Habitat Conservation Plan.

Individuals who filed letters in response to the draft EIS and public notice of October 3, 2006:

Christopher A. Wills, M.D.	March 1, 2006
Elsinore Hang Gliding Association	March 20, 2006
Linda Hale	March 27, 2006
James Provenzano	March 28, 2006
J. Capozzelli	April 12, 2006
Alan L. White	April 12, 2006
Susan Frommer	April 12, 2006
Risser C. Estes	April 18, 2006
Gregory Angsten	April 18, 2006
Jim Shaw	April 18, 2006
Frederick T. Pishotta	April 18, 2006
Dora D. Labellarti	April 18, 2006
Devonne L. Fisher	April 18, 2006
Dennis R. Fisher	April 18, 2006
Lynice Spangler	April 18, 2006
Karen Gilbert	April 19, 2006
Doris J. Singleterry	April 19, 2006
Saul L. Frommer	April 19, 2006
Fred Blaskovich	April 19, 2006
Charles & Yolanda Hoelscher	April 19, 2006
Allyn Cooksey	April 19, 2006
Hansen Family	April 19, 2006

Joan H. Adkins	April 19, 2006
Debbie & Raymond Badham	April 19, 2006
Eric Gilbert	April 20, 2006
Tom Hazelleaf	April 20, 2006
United States Hang Gliding Association	April 20, 2006
Bret M. Daniel	April 20, 2006
John W. Kirk	April 20, 2006
Kriss Larson	April 20, 2006
Bernard M. Lipman	April 20, 2006
James Gaar	April 21, 2006
Bud Mathurin	April 24, 2006
James Flack	April 24, 2006
Eric Gilbert	April 24, 2006
Elsinore Hang Gliding Association	April 24, 2006
Lynn Perry	April 24, 2006
Peter J. & Tina M. Cutuli	April 24, 2006
Martin Kreisler	April 24, 2006
Vance Litchfield	April 24, 2006
Jim Appleby, Sr.	April 24, 2006
Harold Burgess	April 24, 2006
Mitch Frisch	April 24, 2006
Gena Osborne	April 24, 2006
Jeff & Irene Johnson	April 24, 2006
Dawn Swett	April 24, 2006
Anna Marx	April 24, 2006
Susan Cash	April 24, 2006
Karen Snyder	April 24, 2006
Jorgen Moller	April 24, 2006
Patricia Barnes	April 24, 2006
Melody Barnett & Family	April 24, 2006
Dia Peters	April 24, 2006
Linda Nielsen	April 24, 2006
Elizabeth L. Bostian	April 25, 2006
Ray Stinnett	April 25, 2006
Mike Harper	April 25, 2006
Sierra Club, San Diego Chapter, Forest & Wilderness Committee	April 25, 2006
C&C Parties	April 25, 2006
Doug Koch	April 25, 2006
Asher Chapman	April 25, 2006
Michael Estrada	April 25, 2006
Wilmer I. Rohr. IV	April 25, 2006
Mark Mallett	April 25, 2006
John Pitt	April 25, 2006
Robert Carmichael	April 25, 2006
James Wood	April 25, 2006
David W. Biddle	April 25, 2006
Marc Johnson	April 25, 2006
John C. Mulyana	April 25, 2006
John Heiney	April 25, 2006
Brian Dahl	April 25, 2006
David Freman	April 25, 2006

Erik Delf	April 25, 2006
LaCresta Development	April 26, 2006
Kelly Smith, Keller Williams Realty	April 26, 2006
Richard Nakai	April 26, 2006
Melanie Parker and 199 Other Individuals	April 26, 2006
Jo Ann McCracken	April 26, 2006
Marianne & Gerald Cline	April 26, 2006
Patrick & Camilla Davenport	April 26, 2006
Patricia Barnes	April 26, 2006
Linda & Scott Pyle	April 26, 2006
Kathleen Dickey	April 26, 2006
Craig A. Sherman, Esq.	April 26, 2006
Michael Gordon	April 26, 2006
Gordon Kane	April 26, 2006
Albert Temmins	April 26, 2006
Dennis Keith	April 26, 2006
Laurra Maddock	April 26, 2006
Janet Maker	April 26, 2006
Paget Reid	April 26, 2006
Dan Abrams	April 26, 2006
Bill Holmes	April 26, 2006
Jerry Hughes	April 26, 2006
Robert Rocco	April 26, 2006
Casey Hudson	April 26, 2006
Christopher & Mary Louise Muller	April 26, 2006
Philip Glaser, D.D.S.	April 26, 2006
Jennifer Cochrane-Schultz	April 26, 2006
Mikko Helenius, M.D.	April 26, 2006
Brook Bryant	April 26, 2006
Scott Quinnell	April 26, 2006
C. Mollie Bigger, Ph.D.	April 26, 2006
Sharon Connor	April 26, 2006
Karen Thordarson	April 26, 2006
Patricia Bleha	April 26, 2006
Mark Gauthier	April 26, 2006
Mark Sorensen	April 26, 2006
Stephanie Adams	April 26, 2006
Ellen L. Trumpler	April 26, 2006
Claire Frogman	April 26, 2006
Nira Trock	April 26, 2006
Tessa Kershnar	April 26, 2006
Don Bremmer	April 26, 2006
Brittany McKee	April 26, 2006
H.E. Kershnar	April 26, 2006
Phyllis Watson	April 26, 2006
Lisa R. Marks	April 26, 2006
Marni Majda	April 26, 2006
Samam Dabin	April 26, 2006
Melissa Weyek	April 26, 2006
Barbara Meyer	April 26, 2006
Eugene St. Laurent	April 26, 2006

Jason Hashimoto	April 26, 2006
Lynn Fleischer	April 26, 2006
Stephen E. Rudolph	April 26, 2006
Melba Simms	April 26, 2006
Theresa Brady	April 26, 2006
Dorothy Boberg	April 26, 2006
Betty Schnaar	April 26, 2006
Willis Simms	April 26, 2006
J. Water	April 26, 2006
Michael Stevenson	April 26, 2006
Barry Katzen	April 26, 2006
Julie R. Szende	April 26, 2006
Randy Steinberg	April 26, 2006
Elizabeth G. McMahon	April 26, 2006
John M. Rountree	April 26, 2006
Linda Kleer	April 26, 2006
Jeff Fromberg	April 26, 2006
Clif Potts	April 26, 2006
Barbara & Jacob Rubin	April 26, 2006
Michael Karp	April 26, 2006
Mark Carrow	April 26, 2006
Barbara Gable	April 26, 2006
Trish Tuley	April 26, 2006
Joan Weaver	April 26, 2006
Sierra Club, San Gorgonio Chapter	April 26, 2006
Irene Dunny	April 26, 2006
Lori Kessler	April 26, 2006
Debby McAllister	April 26, 2006
Jim McKnight	April 26, 2006
Ralph Bocchetti	April 26, 2006
Jane Affonso	April 26, 2006
Martha Hess	April 26, 2006
Kyle Daniels	April 26, 2006
Lori Whalen	April 26, 2006
Angela M. Woodcock	April 26, 2006
Guy L. Kirkpatrick	April 26, 2006
Ned Boyer	April 26, 2006
Lynne Jeffries	April 26, 2006
Stacy Brady	April 26, 2006
Gregg Oelker	April 26, 2006
Cathy Sellitto	April 26, 2006
Shirley Ann Szalkowski	April 26, 2006
Thomas & Beatriz Ferguson	April 26, 2006
Adrienne Kligman	April 26, 2006
Andrew Sutphin	April 26, 2006
Robin & Tony Applegarth	April 26, 2006
Kris Ockershauser	April 26, 2006
Mark Watt	April 26, 2006
Ed Amador	April 26, 2006
Susan Shields	April 26, 2006
Andrew Reich	April 26, 2006

Sharon Wright	April 26, 2006
Johanna E. Howard	April 26, 2006
Andrea & Charles Sims	April 27, 2006
Donna Gould	April 27, 2006
Garry & Cheryl Chaban	April 27, 2006
David Perlman	April 27, 2006
Paul Carlton	April 27, 2006
Tom Randel	April 27, 2006
Donald R. Gates	April 27, 2006
Julie A. Gates	April 27, 2006
J.D. & Shirley Sooter	April 27, 2006
Lake Elsinore Soaring Club	April 27, 2006
Eileen R. Baldwin	April 27, 2006
Shawn Rogers	April 27, 2006
House Family	April 27, 2006
Edward & Gert La Faso	April 27, 2006
Damien Schlitt	April 27, 2006
Peter H. Dawson	April 27, 2006
Jane Rice & over 400 Other Individuals of the Sierra Club	April 27, 2006
Debbie Chaddock	April 28, 2006
Kim F. Floyd	April 28, 2006
Susan B., Kay, M.D.	April 28, 2006
Chris Warren	April 28, 2006
Rev. Michael Agliardo, SJ	April 28, 2006
Nolan Farkas	April 28, 2006
Ed Van den Bossche	April 28, 2006
Karen Horn	April 28, 2006
Angeles Chapter, Sierra Club	April 28, 2006
Gary W. Feemster	April 28, 2006
Gabriele Rau	April 28, 2006
Darryl Mar	April 28, 2006
Gabi Dendinger	April 28, 2006
Charles L. Polep	April 28, 2006
Walid Soussou	April 28, 2006
Albert A. Rossi	April 28, 2006
Len Gardner	April 28, 2006
Carolyn Olney	April 28, 2006
Yvetta Williams	April 28, 2006
Greg Bell	April 28, 2006
Cynthia Tuell	April 28, 2006
Lynda Warren	April 28, 2006
Ann McKibben	April 28, 2006
Ann Cantrell	April 28, 2006
Dorrit Ragosine	April 28, 2006
Theresa Brady	April 28, 2006
Ralph Bocchetti	April 28, 2006
David A. Miller	April 28, 2006
Rev. Sarah I. Gibb	April 28, 2006
Bob Faulkner	April 28, 2006
Dr. Lyle C. Henry	April 28, 2006
Tom Hazelleaf	April 28, 2006

Dr. Jack Paxton	April 28, 2006
Kris Ockershauser	April 28, 2006
Jeanette McKinley	April 28, 2006
Ruth Hall	April 28, 2006
Dr. W.D. Botch	April 28, 2006
Marlene L. Brown	April 28, 2006
Steven C. Huskey, Esquire	April 28, 2006
Valerie Zachary	April 28, 2006
Sue Kuramoto	April 28, 2006
Gary Hoover	April 28, 2006
Richard Sanders	April 28, 2006
Kenneth N. Howard	May 1, 2006
Dawn Swett	May 3, 2006
Elizabeth L. Bostian	May 3, 2006
Craig Perkins	May 3, 2006
David Perlman	May 3, 2006
Katharine Gring	May 3, 2006
Stephanie Remington	May 3, 2006
Jim Cokas	May 3, 2006
Van Collinsworth	May 3, 2006
Charles David Stout, Ph.D.	May 3, 2006
Mary Ann Kiger	May 3, 2006
Merri B. Levy	May 3, 2006
Rick Farber	May 8, 2006
Don Bremner	May 8, 2006
Robert Ives	May 8, 2006
Jose Henriquez	May 8, 2006
Erik Counseller	May 8, 2006
Inland Empire Waterkeeper	May 31, 2006
US Fish and Wildlife Service	June 21, 2006
USDA-FS PSW Region	June 23, 2006
Elsinore Valley Municipal Water District	July 6, 2006
State Senator Dennis Hollingsworth and Ray Haynes, Assemblyman, 66th District	August 2, 2006
John Pecora	September 6, 2006
Chris Hyland, Doug Pinnow, and John Lloyd	September 14, 2006
Jay Scott	October 2, 2006
Elsinore Valley Municipal Water District	October 30, 2006
Roxanne Salazar	October 31, 2006
Edna Vallecillo Garcia & Family	October 31, 2006
C & C Parties	November 2, 2006
Louise Hurt	November 2, 2006
Eleanor Haile	November 2, 2006
Jenny Flack	November 2, 2006
Gary Nazaroff	November 2, 2006
Dr. Lisa White	November 2, 2006
Tom Saldana	November 2, 2006
Anne Clendinning	November 2, 2006
Margaret Buttner	November 2, 2006
Erlene Kuentzler	November 2, 2006
Harvey Ailport	November 2, 2006

Ruth Sizemore	November 2, 2006
Ed Littlewort	November 2, 2006
David Gilmore	November 2, 2006
Sherrie Fabian	November 2, 2006
Robert Lemke	November 2, 2006
Heath Friedman and Family	November 3, 2006
Linda Sulkamer	November 7, 2006
Reginald & Aleta Thompson	November 7, 2006
Ben Gradias	November 7, 2006
Krista Bradias	November 7, 2006
Mila Escano	November 7, 2006
Debra Nisporic	November 7, 2006
Josh Miles	November 7, 2006
Bryan Groth	November 7, 2006
John Sheppard	November 7, 2006
David Clarkson	November 7, 2006
Vicki Rembock	November 7, 2006
Minervia Nisporic	November 7, 2006
Justin Merkys	November 7, 2006
Gloria Carrillo	November 7, 2006
Robert & Jackie Albaugh	November 7, 2006
Donna Parrish	November 7, 2006
Victoria Bobard	November 7, 2006
Jeremy Marsh	November 7, 2006
Clara Bernice Sheppard	November 7, 2006
Pam Harris	November 8, 2006
Anne Rendeiro	November 8, 2006
Mike Mrak	November 8, 2006
David Rendeiro	November 8, 2006
Gregory S. Brintle	November 8, 2006
Marlene L. Brintle	November 8, 2006
Kent Carlsen	November 8, 2006
Alolen W. Brumbaugh	November 8, 2006
Lucy Mikj	November 8, 2006
Richard Bogert	November 8, 2006
Gary Goldberger	November 8, 2006
David Leal	November 9, 2006
Dawn R. Carrozzo	November 9, 2006
Fred L. Carrozzo	November 9, 2006
Lois Perez	November 9, 2006
Patsy & Robert Duchesne	November 9, 2006
Yvonne Valasek	November 9, 2006
Jon Basel	November 9, 2006
Peter & Janice Daniello	November 9, 2006
Dale & Carol Hook	November 9, 2006
Eldon H. Gloor	November 9, 2006
Sherrie Fabian	November 9, 2006
JoAnn Brown	November 9, 2006
David Gross	November 9, 2006
Sharon Seidman	November 9, 2006
Ross Edmonds	November 9, 2006

Peggy M. O'Donnell	November 9, 2006
Michael P. Johns	November 9, 2006
Shirley Gross	November 9, 2006
Linda Farley	November 9, 2006
John Farley	November 9, 2006
Carmen D. Calco	November 9, 2006
Gerry Stevenson	November 9, 2006
James C. Zack	November 9, 2006
Joalene Rollison	November 9, 2006
Larry Barnett	November 9, 2006
Laurie Fitzgerrell	November 9, 2006
Robert Hills	November 9, 2006
Regina Zasadzuvusju	November 9, 2006
Nancy Leefe	November 9, 2006
Heidi Dietschi	November 9, 2006
William B. Crosman	November 9, 2006
Brian G. Cleary	November 9, 2006
Wendy J. Crosman	November 9, 2006
Norman Gundenheim	November 9, 2006
Susan Troxler	November 20, 2006
Kathy A. Pierce	December 14, 2006

COVER SHEET

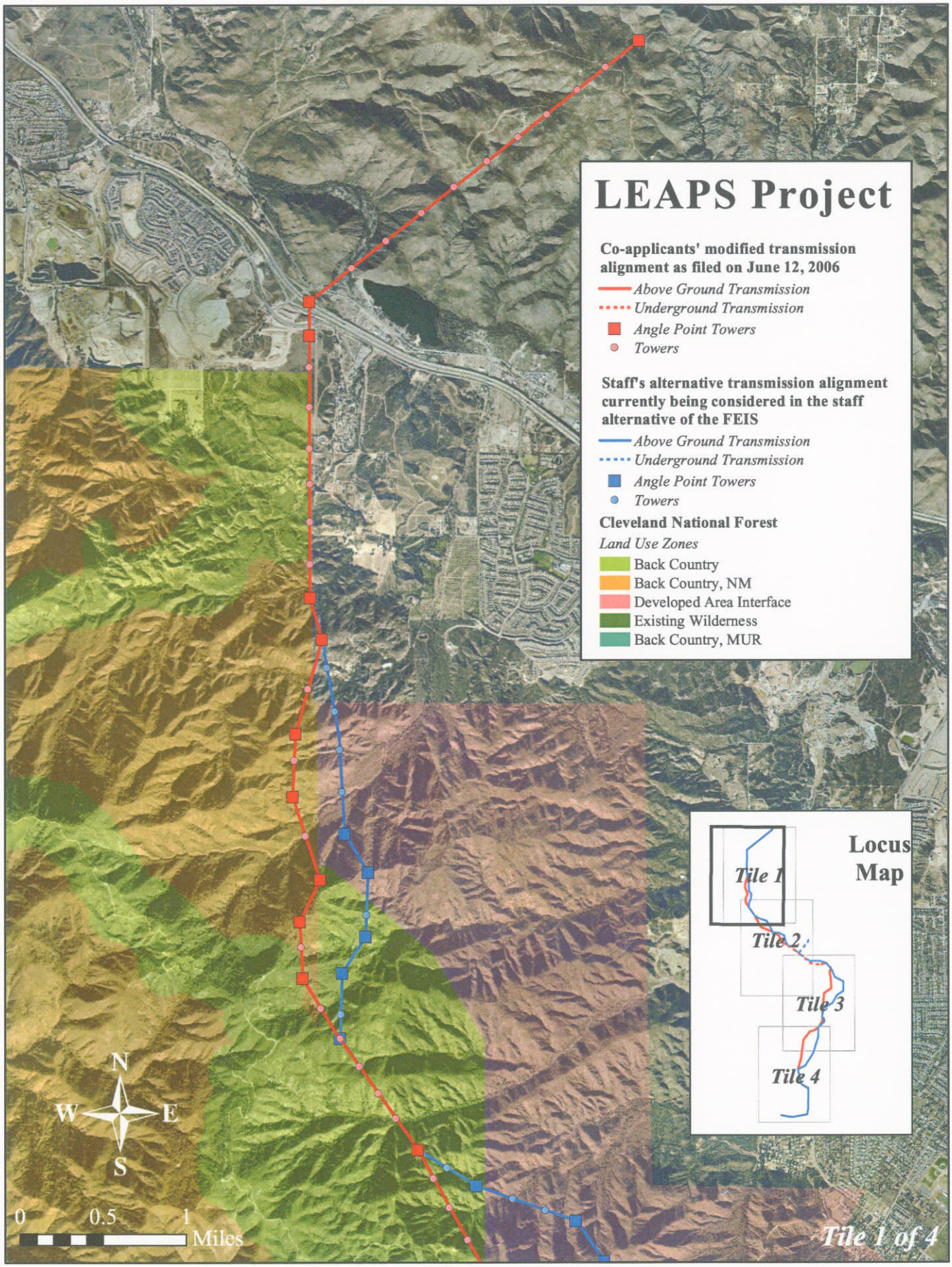
FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
Docket No. P-11858-002

Appendix F
Maps of the Co-applicants' Proposed and Staff Alternative
Transmission Alignment
Tiles 1 through 4
FEIS

APPENDIX F

Maps of the Co-applicants' Proposed and Staff Transmission Alignments


LEAPS Project
Co-applicants' modified transmission alignment as filed on June 12, 2006
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Staff's alternative transmission alignment currently being considered in the staff alternative of the FEIS
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Cleveland National Forest
Land Use Zones
Back Country
Back Country, NM
Developed Area Interface
Existing Wilderness
Back Country, MUR
Locus Map
Tile 1
Tile 2
Tile 3
Tile 4
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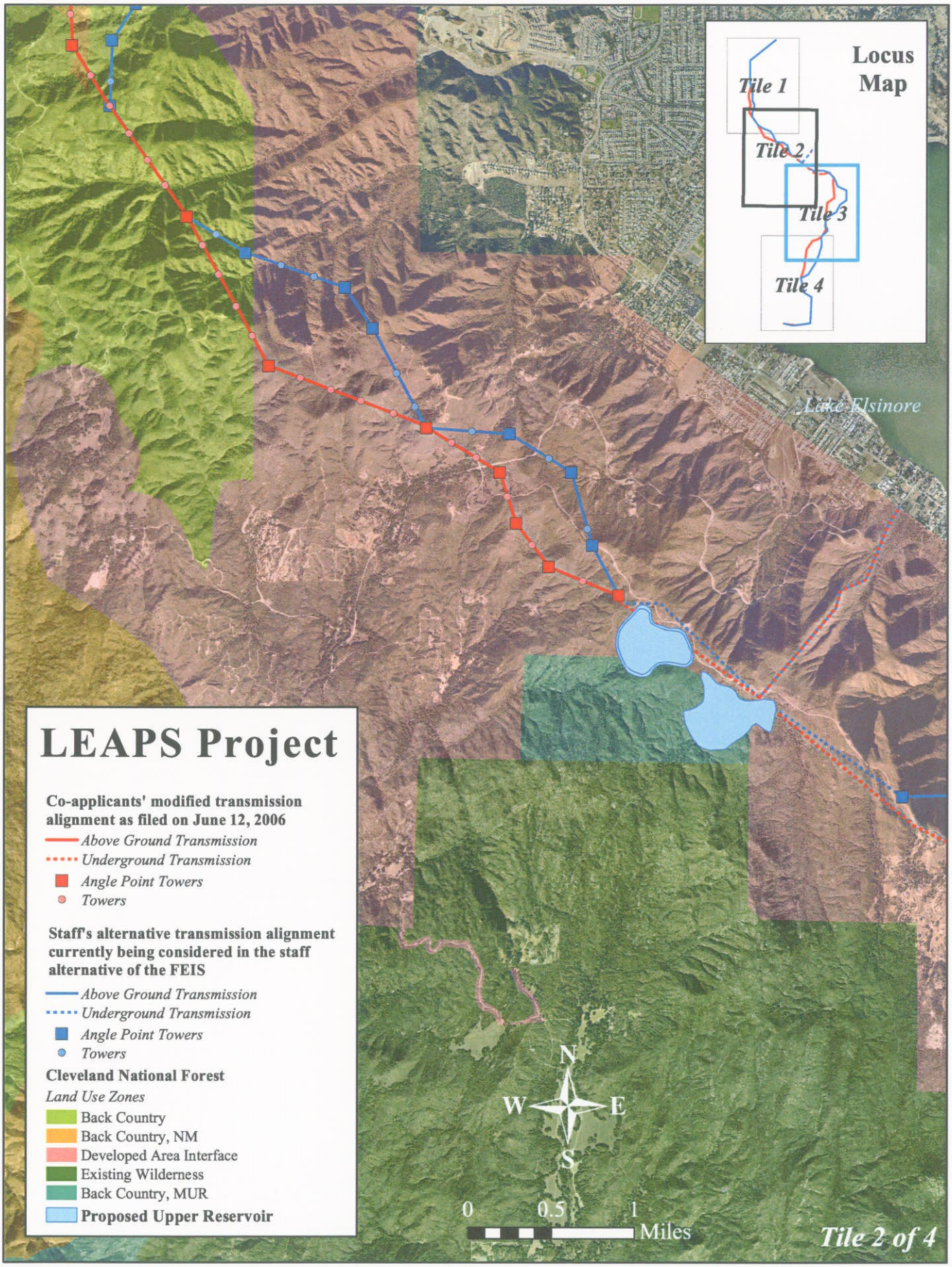
1
Miles
Tile 1 of 4


Locus Map
Tile 1
Tile 2
Tile 3
Tile 4
Lake Elsinore
LEAPS Project
Co-applicants' modified transmission alignment as filed on June 12, 2006
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Staff's alternative transmission alignment currently being considered in the staff alternative of the FEIS
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Cleveland National Forest
Land Use Zones
Back Country
Back Country, NM
Developed Area Interface
Existing Wilderness
Back Country, MUR
Proposed Upper Reservoir
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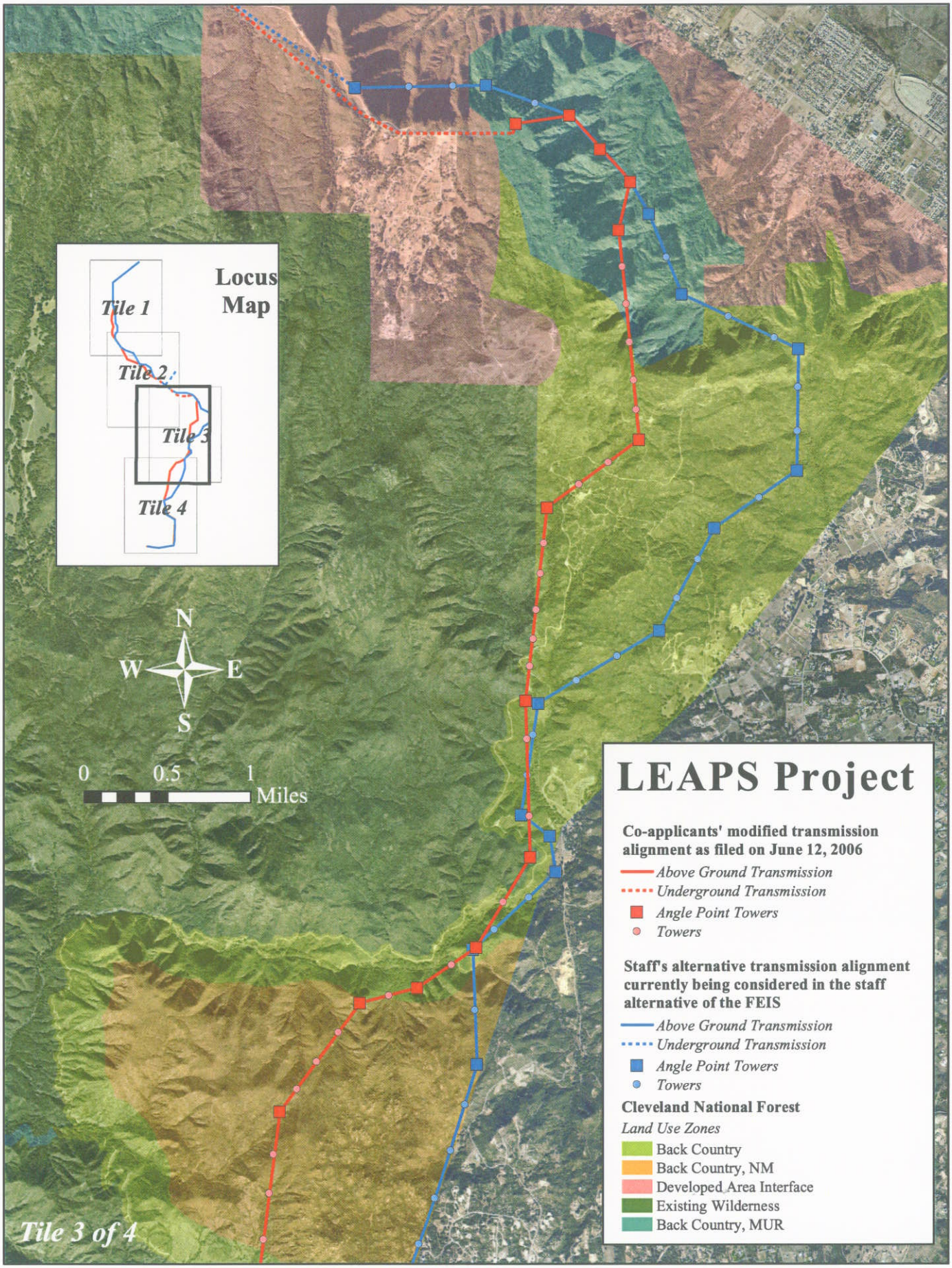
Tile 2 of 4


Locus Map
Tile 1
Tile 2
Tile 3
Tile 4
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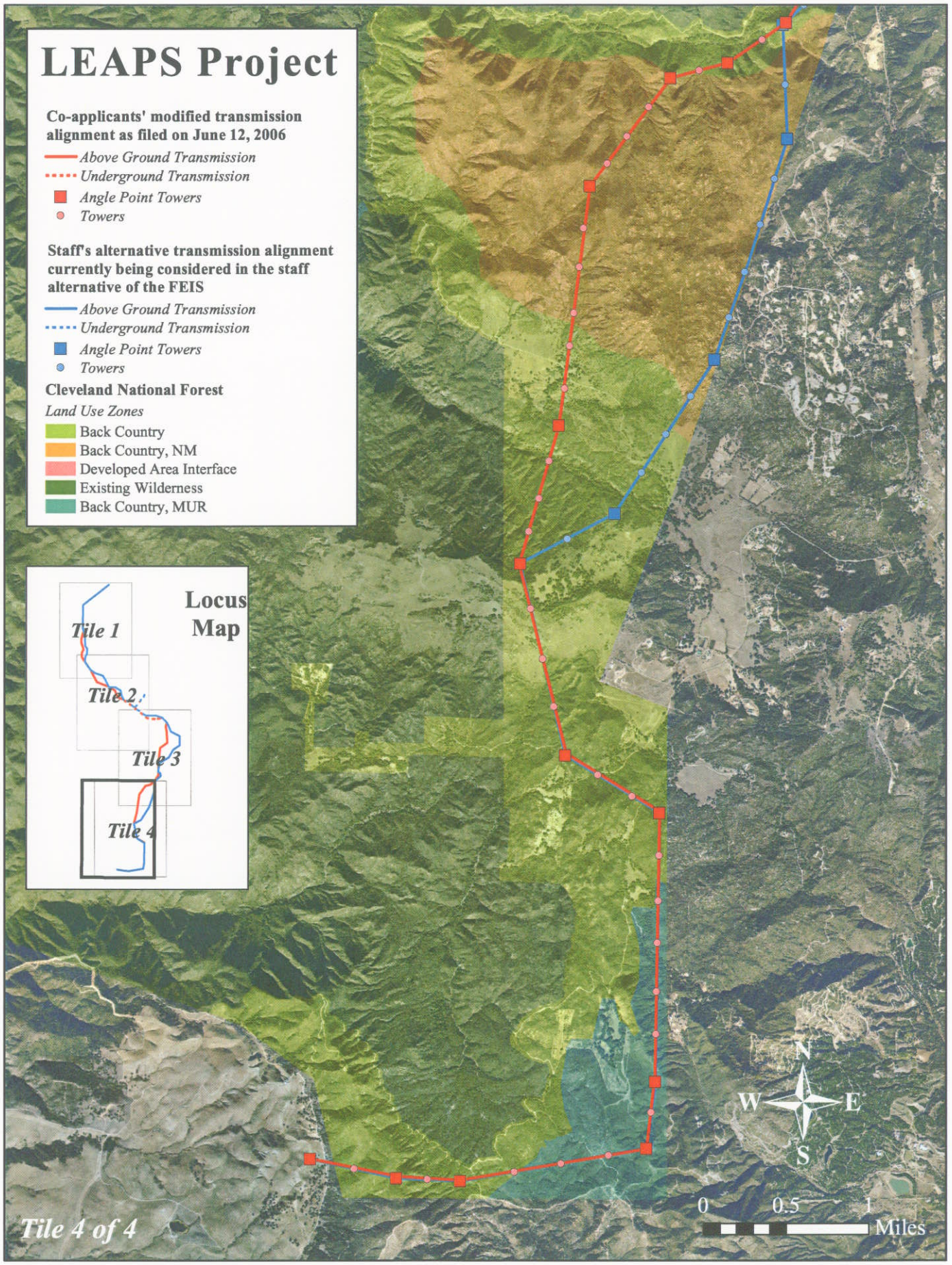
Miles
LEAPS Project
Co-applicants' modified transmission alignment as filed on June 12, 2006
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Staff's alternative transmission alignment currently being considered in the staff alternative of the FEIS
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Cleveland National Forest
Land Use Zones
Back Country
Back Country, NM
Developed Area Interface
Existing Wilderness
Back Country, MUR
Tile 3 of 4


LEAPS Project
Co-applicants' modified transmission alignment as filed on June 12, 2006
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Staff's alternative transmission alignment currently being considered in the staff alternative of the FEIS
Above Ground Transmission
Underground Transmission
Angle Point Towers
Towers
Cleveland National Forest
Land Use Zones
Back Country
Back Country, NM
Developed Area Interface
Existing Wilderness
Back Country, MUR
Locus Map
Tile 1
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Tile 4 of 4

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE
Lake Elsinore Advanced Pumped Storage Project
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Appendix G
Management Indicator Species (MIS) Analysis
Pages G-1 to G-12
FEIS

APPENDIX G

Management Indicator Species Analysis

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APPENDIX G
MANAGEMENT INDICATOR SPECIES ANALYSIS

1. INTRODUCTION

The purpose of this assessment is to evaluate the effects of the Lake Elsinore Advanced Pumped Storage Project (LEAPS Project) on Management Indicator Species (MIS) identified in the Land Management Plan (LMP) for the southern California forests (USFS, 2005a).

2. PROJECT DESCRIPTION

In February, 2004, the Elsinore Valley Municipal Water District (Elsinore Valley MWD) and the Nevada Hydro Company, Inc. (Nevada Hydro), or co-applicants, filed an application for an original license with the Federal Energy Regulatory Commission (Commission or FERC) for the construction and operation of a 500-MW pumped storage project. The project would use Lake Elsinore as a lower reservoir, and would require construction of an upper reservoir within the boundaries of the Cleveland National Forest. The project, including an approximately 30-mile-long transmission line, would occupy about 2,412 acres of federal lands, including National Forest System lands. The co-applicants filed a special use permit application for the TE/VS Interconnect Project with the U.S. Forest Service (USFS) in July 2003. Under the Federal Land Policy and Management Act, the USFS must decide whether to grant an easement for rights of way over, across, and upon National Forest System lands for electrical poles and lines for the transmission and distribution of electrical power.

The proposed action consists of an upper reservoir in Morrell Canyon, a powerhouse at the Santa Rosa location, and a transmission line that crosses the Cleveland National Forest. The staff alternative consists of an upper reservoir at the Decker Canyon site, a powerhouse at the Santa Rosa location, and a transmission line with an alignment similar to the proposed route. For a detailed description of the proposed action and the staff alternative and maps of the project area, refer to the LEAPS Project final environmental impact statement (final EIS).

3. MIS SELECTED FOR THE PROJECT

Table G-1 shows the MIS selected for the four southern California forests, what each is intended to represent, and whether they occur in the LEAPS Project area. As shown in the table, blue oak, Englemann oak, valley oak, bigcone Douglas-fir, Coulter pine, California black oak and white fir do not occur in the project area. The remaining five MIS (mountain lion, mule deer, arroyo toad, song sparrow and California spotted owl) are relevant to the LEAPS Project, and could be affected by construction and operation.

Table G-1. Management Indicator Species selected for the four southern California forests.

Species	Indicators of Management	Relevance to LEAPS Project
Mountain lion	Fragmentation	Known to occur in the project area
Mule deer	Healthy, diverse habitats	Known to occur in the project area
Arroyo toad	Aquatic habitat	Potential habitat in the project area, but not documented to occur
Song sparrow	Riparian habitat	Known to occur in the project area
California spotted owl	Montane conifer forest	Known to occur near the project area
Blue oak	Oak regeneration	Does not occur in the project area

Species	Indicators of Management	Relevance to LEAPS Project
Engelmann oak	Oak regeneration	Does not occur in the project area
Valley oak	Oak regeneration	Does not occur in the project area
Bigcone Douglas-fir	Bigcone Douglas fir forest	Does not occur in the project area
Coulter pine	Coulter pine forest	Does not occur in the project area
California black oak	California black oak forest	Does not occur in the project area
White fir	Montane conifer forest	Does not occur in the project area

In the following sections, we summarize the environmental baseline and potential environmental effects of the LEAPS Project on MIS. Most of the baseline information is taken from species accounts that were developed to provide technical support for the LMP (USFS, 2005b). Detailed information about the environmental baseline for each species (general distribution, distribution in the national forests of southern California, natural history, population and /or habitat status and trends on National Forest System lands, predicted viability outcomes, and threats and conservation considerations) is available on-line in the "reading room" associated with the LMP (USFS, 2006b).

For each species, the discussion of environmental effects focuses on project elements that would be located on National Forest System lands. The FEIS for the LEAPS Project contains additional analysis about potential effects within the broader project area, which also includes non-National Forest System lands. Section 3.3.4.2, *Terrestrial Resources*, of the final EIS discusses effects on mountain lion, mule deer, song sparrow and California spotted owl. Section 3.3.5.2, *Threatened and Endangered Species*, addresses effects on the arroyo toad.

4. MIS ENVIRONMENTAL BASELINE AND ENVIRONMENTAL EFFECTS

4.1 Mountain Lion

The Cleveland National Forest chose the mountain lion as an MIS to evaluate planning and management of habitat fragmentation and habitat linkages (USFS, 2005a). The USFS management goal for this species is to ensure functional landscape linkages and ensure the population is well-distributed.

4.1.1 Environmental Baseline

Mountain lions are habitat generalists, inhabiting a variety of habitat types throughout California. They use any area with predominantly native, woody vegetation; ample prey (especially mule deer); and low density of human inhabitants (Dickson et al., 2005). They are rare at higher elevations in pure stands of conifers and at lower elevations in pure stands of chamise chaparral.

While mountain lions may be thriving in some areas of northern California, they are considered imperiled in some of southern California's highly fragmented wildlands (Stephenson and Calcarone 1999). Beier (1991) estimates a population of about 20 mountain lions in the Santa Ana Mountains of the Cleveland National Forest. This population is isolated as a result of habitat fragmentation, and is likely to be extirpated unless adequate movement corridors are established and protected between the Santa Anas and the Palomar Range to the east.

A 5-year study of mountain lions in the Santa Ana Mountains showed that two animals occupied home ranges that included sites where LEAPS Project features would be constructed (Beier and Barrett, 1993). One of these animals (a young male) was documented several times in upper Morrell Canyon. Radio-tracking of both this individual and one other mountain lion (an adult female) showed frequent

movements near the northern segment of the proposed transmission alignment route, parallel with the ridgeline (a northwest-southeast orientation).

4.1.2 Environmental Effects

Effects of the Proposed Action on Mountain Lion Habitat

Construction of an upper reservoir at Morrell Canyon would temporarily disturb about 140 acres of suitable mountain lion habitat and convert about 100 acres, including 20 acres of riparian oak woodland, to project use. The reservoir would be located on top of Lion Spring. Water from the upper drainage area would be collected and conveyed under the reservoir, and returned to the creek downstream of the dam.

Construction would affect about 0.25 acre at each of 85 transmission tower sites, and would convert about 21.25 acres of suitable mountain lion habitat to project use. Some temporary access roads would be constructed, and then obliterated and revegetated, but many of the towers would be installed using helicopters to avoid road construction on steep slopes. Locations of any access roads that may be constructed are not known at this point in the design process.

Construction of the underground transmission line segment would temporarily disturb about 23.2 acres within suitable mountain lion habitat, and convert about 5.8 acres to permanent maintenance road.

Noise disturbance would occur during construction. Maintenance activities during project operation would cause localized disturbance at the reservoir site, but disturbance levels would not be substantially greater than those that occur under existing conditions along the South Main Divide Road and Morgan Trail. The co-applicants would use helicopters to maintain the transmission line, which would cause temporary, localized disturbance.

Effects of the Staff Alternative on Mountain Lion Habitat

Construction of an upper reservoir at Decker Canyon would temporarily disturb about 140 acres of suitable habitat, and convert about 100 acres, including 5 acres of riparian oak woodland, to project use. No springs or seeps would be affected by construction, and no water conveyance system is thought to be necessary.

Construction would affect about 0.25 acre at each of an estimated 85 transmission tower sites and would convert about 21.25 acres to project use. The southern segment of the alternative alignment is located east of the proposed alignment and closer to the edge of the National Forest System boundary over several miles of the route, or follows immediately along the edge of the National Forest System boundary. Any temporary access roads needed for this alignment would presumably also be closer to the edge of the National Forest System boundary. Many of the towers would be installed using helicopters to avoid road construction on steep slopes. Locations of any access roads that may be constructed are not known at this point in the design process.

Construction of the underground transmission line segment would temporarily disturb about 15.1 acres within suitable mountain lion habitat, and convert about 3.4 acres to permanent maintenance road.

Noise disturbance would occur during construction. Maintenance activities during project operation would cause localized disturbance at the reservoir site. Disturbance levels would be slightly greater than those that occur under existing conditions along the South Main Divide Road, because construction would occur at a site that does not support any recreation activity. The co-applicants would use helicopters to maintain the transmission line, which would cause temporary, localized disturbance.

Effects on Mountain Lion Habitat and/or Population Trends

Construction of either project alternative would contribute to the downward trend in habitat availability for mountain lions in southern California, and would likely contribute to downward population trends for this species in the Santa Ana Mountains. Effects associated with Morrell Canyon would be more substantial than those that would occur at Decker Canyon, due to the loss of more oak woodland. Based on radio-tracking studies (Beier and Barrett, 1993), upper Morrell Canyon (and Lion Spring) may provide an important habitat element for mountain lions. Lion Spring may also be important for mule deer, their primary prey.

The transmission line itself would not likely block mountain lion movement or interfere with existing or proposed linkages, because transmission towers typically would be spaced at intervals of 1,000 to over 1,700 feet, and vegetation would not be removed beneath the line, except as needed for fuel management during project operation. The staff alternative alignment is closer to the edge of the National Forest System boundary, and intrudes less into mountain lion habitat. Access roads would also likely intrude less into mountain lion habitat under the staff alternative alignment. For this reason, the staff alternative transmission alignment should have less effect on mountain lion habitat or population trends.

Permanent maintenance or temporary access roads would not likely block mountain lion movement, since mountain lions often travel along lightly used dirt roads, but would increase the risk of disturbance (including illegal harvest) and damage to habitat, if public access is not controlled. Implementation of weed management and road management plans would reduce the potential for adverse effects.

4.2 Mule Deer

The Cleveland National Forest uses mule deer as an indicator of healthy, diverse habitats with low to moderate levels of human disturbance (USFS, 2005a). The USFS management goal for mule deer is to maintain stable or increasing well-distributed populations.

4.2.1 Environmental Baseline

In low-elevation mountain ranges of southern California, such as the Santa Ana Mountains, mule deer reach their highest densities in oak woodlands, riparian areas, and meadow and grassland margins. They also occur in open scrub and young chaparral.

The LMP indicates that the four southern California national forests support most of the deer in the southern part of California (USFS, 2005b). The USFS (2005b) reports that the Santa Ana population is estimated at about 950 deer. Based on analysis of trends between 1990 and 1996, CDFG believes that populations are stable in the South Coast Deer Analysis Unit (DAU 7), which includes the Santa Ana Mountains (CDFG, 1998). More recently, the USFS estimated the population in hunt zones D-15 and D-16 of DAU 7, which are located in the Cleveland National Forest, at 3,360 (USFS, 2005b).

Effects of the Proposed Action on Mule Deer Habitat

Construction of an upper reservoir at Morrell Canyon would temporarily disturb about 140 acres of suitable mule deer habitat and convert about 100 acres, including 20 acres of riparian oak woodland, to project use. The reservoir would be located on top of Lion Spring, which may be important as a water source for mule deer. However, water from the upper drainage area would be collected and conveyed under the reservoir, and returned to the creek downstream of the dam.

Construction would affect about 0.25 acre at each of 85 transmission tower sites, and would convert about 21.25 acres of suitable mule deer habitat to project use. Some temporary access roads would be constructed, and then obliterated and revegetated, but many of the towers would be installed

using helicopters to avoid road construction on steep slopes. Locations of any access roads that may be constructed are not known at this point in the design process.

Construction of the underground transmission line segment would temporarily disturb about 23.2 acres within suitable mule deer habitat, and convert about 5.8 acres to permanent maintenance road.

Noise disturbance would occur during construction. Maintenance activities during project operation would cause localized disturbance at the reservoir site, but disturbance levels would not be substantially greater than those that occur under existing conditions along the South Main Divide Road and Morgan Trail. The co-applicants would use helicopters to maintain the transmission line, which would cause temporary, localized disturbance.

Effects of the Staff Alternative on Mule Deer Habitat

Construction of an upper reservoir at Decker Canyon would temporarily disturb about 140 acres of suitable mule deer habitat and convert about 100 acres, including 5 acres of riparian oak woodland, to project use. No springs or seeps would be affected by construction, and no water conveyance system is thought to be necessary.

Construction would affect about 0.25 acre at each of an estimated 85 transmission tower sites and would convert about 21.25 acres to project use. Temporary access roads would likely be constructed to provide access to the transmission line route, but many of the towers would be installed using helicopters to avoid road construction on steep slopes. Locations of any access roads that may be constructed are not known at this point in the design process.

Construction of the underground transmission line segment would temporarily disturb about 15.1 acres within suitable mule deer habitat and convert about 3.4 acres to permanent maintenance road.

Noise disturbance would occur during construction. Maintenance activities during project operation would cause localized disturbance at the reservoir site. Disturbance levels are currently low, because the Decker Canyon site does not provide trail access. For this reason, maintenance activity would represent a small incremental increase in Decker Canyon. The co-applicants would use helicopters to maintain the transmission line, which would cause temporary, localized disturbance.

Effects of the Project on Mule Deer Habitat and/or Population Trends

Construction of either project alternative would contribute to downward trends in habitat for mule deer that have occurred as a result of residential and urban development in southern California. Loss of habitat would eventually also contribute to downward trends in population, although a 1998 CDFG report indicated the population trend in DAU 7 is stable. Riverside County is one of the five counties anticipated to be most affected by loss of habitat for deer between 2000 and 2020 (CDFG, 2004). Loss of a larger area of oak woodland at Morrell Canyon would have a more substantial effect than loss of habitat at Decker Canyon, because mule deer use oak woodlands for thermal and hiding cover, and rely heavily on acorns as a food resource in the fall (Zeiner et al., 1990).

Road densities would slightly increase under either alternative, and increase the risk of disturbance (including illegal harvest) and habitat damage during project operation, if public access is not controlled. Implementation of weed management and road management plans would reduce the potential for adverse effects.

4.3 Arroyo Toad

The arroyo toad is an indicator of aquatic habitat quality. The Cleveland National Forest anticipates that long term trends in arroyo toad abundance, distribution and habitat condition will reflect the effectiveness of protection and improvement measures for arroyo toads and other riparian dependent

species on National Forest System lands. The USFS management goal for this species is to maintain properly functioning streams and stable or increasing populations (USFS, 2005a).

4.3.1 Environmental Baseline

The arroyo toad is endemic to the coastal plains, mountains, and desert slopes of central and southern California and northwestern Baja California from near sea level to about 8,000 feet. Within these areas, arroyo toads are found in both perennial and intermittent rivers and streams with shallow, sandy to gravelly pools adjacent to sand or fine gravel terraces.

Arroyo toads occur in most of the major stream systems on the Cleveland National Forest. While populations on the Cleveland National Forest and surrounding lands are more numerous than on the other forests, many appear to be small. Most of the populations occur right along the national forest boundary, with the bulk of prime breeding habitat often lying just off National Forest System lands.

The FWS recovery plan indicates the arroyo toad is present in the headwaters of San Mateo Creek and some of its tributaries, and identifies San Juan Creek from Decker Canyon to the Orange County line as being within Recovery Unit 10 (FWS, 1999). In April 2005, FWS revised the boundaries of designated critical habitat for the arroyo toad (70 FR 70). No critical habitat is now designated within the San Juan Creek or San Mateo Creek drainages in Riverside or Orange County.

Essential habitat for this species is located in the San Juan Creek drainage downstream of the Riverside/Orange County line, about 4 miles south of Morrell and Decker canyons (70 FR 70).

The co-applicants' consultant, MBA, identified potential habitat for the arroyo toad at one location on the northern segment of the proposed transmission alignment (Temescal Wash), outside National Forest System lands, and at two locations along the southern segment (Los Alamos Canyon and Tenaja Creek), where the transmission alignment would cross streams and associated riparian habitat. MBA conducted surveys for the arroyo toad at each of these sites but did not observe any evidence of this species (MBA, 2004).

4.3.2 Environmental Effects

Effects of the Proposed Action on Arroyo Toad Habitat

Construction of an upper reservoir at Morrell Canyon would not affect arroyo toad habitat.

Construction of two transmission towers could affect about 0.5 acre of essential habitat at Los Alamos Canyon and Tenaja Creek crossings, if they are constructed within 1,640 feet of riparian habitat. Construction of two towers at Temescal Wash could affect 0.5 acre of potential habitat. However, towers generally would be constructed at the tops of slopes and along ridgelines, rather than in canyon draws or stream bottoms that would support riparian habitat.

Temporary road construction could affect the suitable toad habitat, including tributaries to the San Mateo Creek watershed. Locations of any access roads that may be constructed are not known at this point in the design process. However, existing roads or helicopters would be used to install most transmission line towers to avoid road construction on steep slopes.

Construction of the underground segment of the transmission line would not affect arroyo toad habitat.

Effects of the Staff Alternative on Arroyo Toad Habitat

Construction of an upper reservoir at Decker Canyon would not affect arroyo toad habitat.

Construction of two transmission towers could affect about 0.5 acre of essential habitat at Los Alamos Canyon and Tenaja Creek crossings, if they are constructed within 1,640 feet of riparian habitat. Construction of two towers at Temescal Wash could affect 0.5 acre of potential habitat. However, towers generally would be constructed at the tops of slopes and along ridgelines, rather than in canyon draws or stream bottoms that would support riparian habitat.

Temporary road construction could affect the suitable toad habitat, including tributaries to the San Mateo Creek watershed. Locations of any access roads that may be constructed are not known at this point in the design process. However, existing roads or helicopters would be used to install most transmission line towers to avoid road construction on steep slopes.

Construction of the underground segment of the transmission line would not affect arroyo toad habitat.

Effects on Arroyo Toad Habitat and/or Population Trends

Construction of an upper reservoir at either Morrell Canyon or Decker Canyon would not affect arroyo toad habitat or population trends. No habitat is present at the site, and the risk of adverse effects occurring downstream in the event of a dam failure is small. High hazard dams (such as would be constructed at either location) must be designed to withstand the probable maximum flood and the maximum credible earthquake, and are subject to regular federal and state inspections.

Construction of transmission towers and access roads is anticipated to avoid riparian habitat, for the most part. Construction of either transmission alignment could cause a small reduction (i.e., 0.5 to 1.0 acre) in potential habitat, but would not likely contribute to downward population trends, since no arroyo toad populations are known in the project area.

If located in riparian habitats, temporary access roads could increase the risk of erosion and sedimentation during construction. Implementation of best management practices to prevent erosion and sedimentation would reduce the potential for adverse effects on streambank stability and water quality.

If located in riparian habitats, temporary access roads could also increase the risk of disturbance and habitat damage during project operation, unless public access is controlled. Implementation of weed management and road management plans reduce the potential for adverse effects.

4.4 Song Sparrow

The Cleveland National Forest selected the song sparrow as an MIS for the health of riparian habitat (USFS, 2005a). The USFS management goal for this species is to maintain stable or increasing populations and healthy riparian habitat.

4.4.1 Environmental Baseline

In California, this species breeds primarily in riparian habitat or wetlands, where it typically nests in herbaceous vegetation or shrubs. The LMP describes song sparrows as being well distributed in southern California forests; surveyors documented song sparrows at 197 out of 206 point count stations during an 8-year period of forest riparian bird count surveys.

The Partners in Flight Species Assessment (Panjabi et al., 2005) indicates population trends are highly variable or unknown within the species' range, and predicts a slight to moderate decline in future suitability of breeding conditions. The LMP describes a significant negative trend in populations on National Forest System lands, and a slight downward (but insignificant) trend on non-National Forest System lands in the California foothills (USFS, 2005b). However, the LMP also emphasizes protection and enhancement of riparian condition, and indicates the trend for this habitat type should be stable or improving.

Effects of the Proposed Action on Song Sparrow Habitat

Construction of an upper reservoir at Morrell Canyon would convert about 20 acres of riparian oak woodland to project use. The reservoir would be located on top of Lion Spring. Water from the upper drainage area would be collected and conveyed under the reservoir, and returned to the creek downstream of the dam.

Tower construction would affect some song sparrow habitat where the alignment crosses streams, but towers generally would be sited along ridgelines and at the tops of slopes, rather than in canyon draws or stream bottoms that might support riparian forest or shrub. Temporary access roads would presumably also avoid steep canyon draws and riparian habitat, and should not affect song sparrow habitat during either construction or operation. Locations of any access roads that may be constructed are not known at this point in the design process. However, existing roads or helicopters would be used to install most transmission line towers to avoid road construction on steep slopes.

Construction of the underground transmission line segment and the permanent maintenance road alongside it would be located primarily in chaparral and would not affect song sparrow habitat.

Noise disturbance would occur during construction. Maintenance activities during project operation would cause localized disturbance at the reservoir site, but disturbance levels would not be substantially greater than those that occur under existing conditions along the South Main Divide Road and Morgan Trail. The co-applicants would use helicopters to maintain the transmission line, which would cause temporary, localized disturbance.

Effects of the Staff Alternative of Song Sparrow Habitat

Construction of an upper reservoir at Decker Canyon would convert about 5 acres of riparian oak woodland to project use. No seeps or springs are present, and no water conveyance system is thought to be needed.

Tower construction would affect some song sparrow habitat, but towers generally would be sited along ridgelines and at the tops of slopes, rather than in canyon draws or stream bottoms that might support riparian forest or shrub. Locations of any access roads that may be constructed are not known at this point in the design process. Temporary access roads would presumably also avoid steep canyon draws and riparian habitat, and should not affect song sparrow habitat during either construction or operation.

Construction of the underground transmission line segment and the permanent maintenance road alongside it would be located primarily in chaparral and would not affect song sparrow habitat.

Noise disturbance would occur during construction. Maintenance activities during project operation would cause localized disturbance at the reservoir site. Disturbance levels are currently low, because the Decker Canyon site does not provide trail access. Maintenance activities could represent a small incremental increase in disturbance. The co-applicants would use helicopters to maintain the transmission line, which could cause temporary, localized disturbance near some riparian areas.

Effects on Song Sparrow Habitat and/or Population Trends

Construction of a reservoir at either Morrell Canyon or Decker Canyon would reduce available habitat for song sparrows. Effects would be greater at Morrell Canyon, which carries more water and supports more hydrophytic vegetation than Decker Canyon. Construction at either site could contribute to downward trends in song sparrow populations, which the LMP describes as significantly negative on National Forest System lands, and slightly downward (but insignificant) on non-National Forest System lands.

Construction of transmission towers and access roads is anticipated to avoid riparian habitat, for the most part. If located in riparian habitats, temporary access roads could increase the risk of erosion during construction. Implementation of best management practices would reduce the potential for adverse effects on streambank stability.

If located in riparian habitats, temporary access roads could increase the risk of disturbance and habitat damage during project operation, unless public access is controlled. Implementation of weed management and road management plans would reduce the potential for adverse effects.

4.5 California Spotted Owl

The California spotted owl is an MIS for montane conifer forest habitat (USFS, 2005a). The Cleveland National Forest anticipates that monitoring for this species would provide information about whether USFS management is maintaining enough mature, large-diameter, high-canopy cover stands with densely shaded understories to provide sufficient habitat for interior forest species. The USFS management goal for this species is to maintain/increase numbers and distribution (USFS, 2005a).

4.5.1 Environmental Baseline

California spotted owls in the Santa Ana Mountains, and in other southern California forests, are clustered in islands of suitable habitat, surrounded by habitat that is not suitable (USFS, 2005b). The LMP indicates that in southern California, owls may use home ranges as small as 98 to 243 acres when they are located in riparian/hardwood forests, because they use narrow stringers of dense forest along steep canyons in areas otherwise dominated by chaparral (USFS, 2005b). Small oak stands may also serve as important stepping stones in dispersal.

As of 1992, surveys confirmed 114 pairs in the San Bernardino Mountains, the largest subpopulation in southern California, and 11 in the Santa Ana Mountains (Beck and Gould, 1992). The results of a 2003 report on range-wide population trends were inconclusive, but USFS (2005b) indicates there is a high risk that the southern California metapopulation will go extinct within the next 30 to 40 years.

Effects of the Proposed Action on California Spotted Owl Habitat

Construction of an upper reservoir at Morrell Canyon would convert about 20 acres of oak woodland to project use.

Tower construction could affect some owl habitat, but towers generally would be sited along ridgelines and at the tops of slopes, rather than in canyon draws that might support riparian forest. Locations of any access roads that may be constructed are not known at this point in the design process. Temporary access roads would presumably also avoid steep canyon draws and riparian habitat, and should not affect owl habitat during either construction or operation.

Construction of the underground transmission line segment and the permanent maintenance road alongside it would be located primarily in chaparral and would not affect owl habitat.

Noise disturbance during construction or operation would be unlikely, because the closest documented owl site is located about 2 miles from the proposed transmission alignment.

Effects of the Staff Alternative on California Spotted Owl Habitat

Construction of an upper reservoir at Decker Canyon would convert about 5 acres of oak woodland to project use.

Tower construction could affect some owl habitat, but towers generally would be sited along ridgelines and at the tops of slopes, rather than in canyon draws that might support riparian forest.

Construction of the underground transmission line segment and the permanent maintenance road alongside it would be located primarily in chaparral and would not affect owl habitat. Locations of any access roads that may be constructed are not known at this point in the design process. Temporary access roads would presumably also avoid steep canyon draws and riparian habitat, and should not affect owl habitat during either construction or operation.

Noise disturbance would be unlikely during project construction or operation, because the closest documented owl site is located about 2 miles from the staff alternative transmission alignment.

Effects on California Spotted Owl Habitat and/or Population Trends

The loss of oak woodland habitat at Morrell Canyon or Decker Canyon would contribute to downward habitat trends for the California spotted owl in southern California. Effects associated with Morrell Canyon would be more substantial than those that would occur at Decker Canyon, due to the loss of more oak woodland that could serve as a stepping stone for owl dispersal. USFS assigns the highest habitat value rating to coast live oak forest with 80 to 100 percent canopy cover (USFS, 2005b).

No California spotted owls are known to be present in any areas that would be affected by project construction, and no direct loss of nest sites, pairs or individuals would be expected. However, loss of habitat at either Morrell or Decker Canyon would likely contribute to downward trends in population and further impede recovery of populations in the Santa Ana Mountains.

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