



May 21, 2013

California Energy Commission
Dockets Unit
1516 Ninth Street
Sacramento, CA 95814-5512

**Subject: PALEN SOLAR ELECTRIC GENERATING SYSTEM SUMMARY OF
SPRING WILDLIFE AND PLANT SURVEYS
PALEN SOLAR ELECTRIC GENERATING SYSTEM
DOCKET NO. (09-AFC-7C)**

Enclosed for filing with the California Energy Commission is the electronic version of **PALEN SOLAR ELECTRIC GENERATING SYSTEM SUMMARY OF SPRING WILDLIFE AND PLANT SURVEYS**, for the Palen Solar Electric Generating System (09-AFC-7C).

Sincerely,



Marie Fleming

Alice E. Karl, Ph.D.
P.O. Box 74006
Davis, CA 95617

16 May 2013

Ms. Ann Crisp
California Energy Commission
1516 9th St.
Sacramento, CA 95814-5512

Re: Palen Solar Electric Generating System (PSEGS), Summary of Spring Wildlife and Plant Surveys

Dear Ms. Crisp,

This letter transmits a summary of the methods and results of surveys, to date, conducted in Spring 2013 for the PSEGS project (Project) for desert tortoise, special-status wildlife, burrowing owl and special-status plant species. The summary of the survey for state waters will be transmitted under separate cover shortly. Continuing surveys for bats, burrowing owls, other birds, and golden eagles will be submitted upon completion of those surveys, or quarterly, as appropriate. Per agreement in the 17 April workshop with the California Energy Commission (CEC), the surveys reported herein were restricted to the additions to the footprint of the Approved Project (Palen Solar Power Project [PSPP]), specifically two linear facilities: the gen-tie extension and the addition of a natural gas pipeline.

1.0 Desert Tortoise

Survey Methods

Comprehensive biological resource surveys designed to meet all applicable FWS, Bureau of Land Management (BLM), California Department of Fish and Wildlife (CDFW) and CEC requirements were conducted on several dates between 7 and 30 April 2011, with most of the survey completed on 7 April. Surveys adhered to the most recent FWS survey protocols (FWS 2010), with the addition that the three buffer surveys were conducted to ensure coverage of the Project "Action Area"¹, irrespective of whether tortoise sign were encountered in the Linear Corridor². These methods were presented to all three agencies on 6 March 2013.

The Survey Area included 100% coverage of the modified gen-tie (120 ft wide) and the gas pipeline (50 ft wide), using transects spaced 10 m apart (Figure 1). In addition, single 10-m-wide transects were walked at 200 m, 400 m and 600 m parallel to both

¹ "Action Area" is a term used by FWS to denote all areas in which a listed species may be directly and indirectly affected by project activities.

² The 2010 protocols do not require that buffer surveys be conducted if tortoise sign is observed in a linear corridor.

edges of the Linear Corridors. Two experienced tortoise/desert biologists (Paul Frank and Alice Karl) conducted the surveys. Transects were pre-programmed into Global Positioning System (GPS) units to ensure accurate and complete coverage.

Underpasses within the buffer zone also were surveyed for evidence of tortoise use. The habitat in these was described per request from FWS (J. Fraser, FWS Biologist, 11 March 2013 e-mail to A. Karl). Between buffer transects, sign was sought along the freeway. This also included most of the artificial swale on the south side (next to the pavement), although the density of the cheesebush in this swale is so high that only an intense, clearance-type of survey would be conclusive. That said, the sandy floors of the swale and underpasses provided a very good substrate for tortoise tracks; in fact, many tracks of other animals (rodents, birds, foxes, deer) were observed.

On all transects, all tortoise sign (tortoises, burrows, shells, scat, tracks, drinking depressions) observed was measured, mapped, and described relative to condition, age and, if possible, gender; cover site locations were additionally described relative to location and associated sign. Tortoises were photographed only if that could be achieved without touching or otherwise harassing the tortoise. Tortoise location (e.g., aboveground, visible in burrow, not visible in burrow) was recorded. Shells and shell parts also were further evaluated relative to the cause of death, if possible, and whether each represented an entire individual. Current and recent weather conditions were recorded and the topography, drainage patterns, soils, substrates, plant cover, and aspect-dominant, common and occasional plant species described and mapped. All incidental sightings of common ravens, other known tortoise predators, and other site features (e.g., anthropogenic influences) that could assist in the analysis of tortoise population impacts were recorded and mapped using a GPS unit. All transect data were recorded on specially-designed data forms and representative areas photographed.

Survey Results

No live tortoises were found on the Linear Facilities routes or buffer transects (Table 1). Sign of recent tortoise occupation included two burrows on the gen-tie buffer, south of I-10, and one questionable burrow in the buffer north of the freeway (Table 3, Figure 1). Otherwise, all remaining sign were older, and included one burrow in the gen-tie buffer and two sets of shell fragments, each comprising only one or a few plates. All of the sign represented adult tortoises except one set of shell fragments, which was part of a mid-sized immature tortoise.

Table 1. Summary of Desert Tortoise Sign Observed on the Modified Linear Facilities, Spring 2013

Sign Type	Number of Observations				
	Gen-tie	Gen-tie Buffer	Natural Gas Pipeline	Natural Gas Pipeline Buffer	Total
Individual	0	0	0	0	0
Burrow - Recent	0	2	0	0	2
Burrow – Not Recent	0	1	0	0	1
Potential Burrow	0	1	0	0	1
Scat (not associated with burrow)	0	0	0	0	0
Shell Fragments < 4 years old	0	0	0	0	0
Shell Fragments > 4 years old	1	0	0	1	2

The FWS (2010) protocols do not provide a method for estimating tortoise density when no tortoises are observed. Presence is verified by tortoise sign, although current occupation cannot be verified except by the presence of sign that indicates current use. For the Modified Linear Facilities, there was sufficient recent sign in the buffers to substantiate tortoise use of this portion of the Project, which is not surprising since both facilities travel through fairly low quality tortoise habitat. Data from the Approved Project (AECOM 2009 and 2010b) and the adjacent Desert Sunlight project, for both their 2008-2010 surveys (Ironwood Consulting, Inc., 2010) and recent construction monitoring (K. Stein, pers. comm. to A. Karl) also confirm that there are tortoises in the vicinity of the gen-tie (Figure 2, Centerline 2013a).

For the Approved Project, no live tortoises were observed within the PSPP boundaries. FWS used tortoises found in the buffer transects of the gen-tie (i.e., the Action Area) to estimate tortoise density for the Project and estimated that two subadult or adult tortoises occupy the Project (FWS 2011:18). They further used regional estimates to extrapolate to the Project and concluded that 2-12 adult tortoises may occupy the site. They used these estimates to further estimate the number of juvenile tortoises and eggs. The current data from the 2013 surveys of the Modified Linear Facilities do not provide any information that would alter this analysis.

Carcasses are sometimes used to evaluate past tortoise density, although this is very difficult for shells that are over about four years in age. It is simply too difficult to age those shells accurately. Furthermore, shells are transported by scavengers, predators,

and water flow. For example, one of the shell fragments observed was found in a woodrat nest. But, it can be reasonably concluded that at least one additional adult, probably a female, occupied the vicinity of the modified gen-tie and one immature tortoise occupied the vicinity of the gas line more than four years ago.

Summary and Conclusion

The Spring 2013 surveys on the Modified Linear Facilities do not provide information that would alter the tortoise density estimated for the Approved Project. Nor are the impacts to critical habitat substantially changed, although 4.6 acres more are affected (Table 2). Because of the low estimated density, the proposed take of desert tortoise is expected to be low, and is not likely to have a biologically significant impact on the species or the local population or the species.

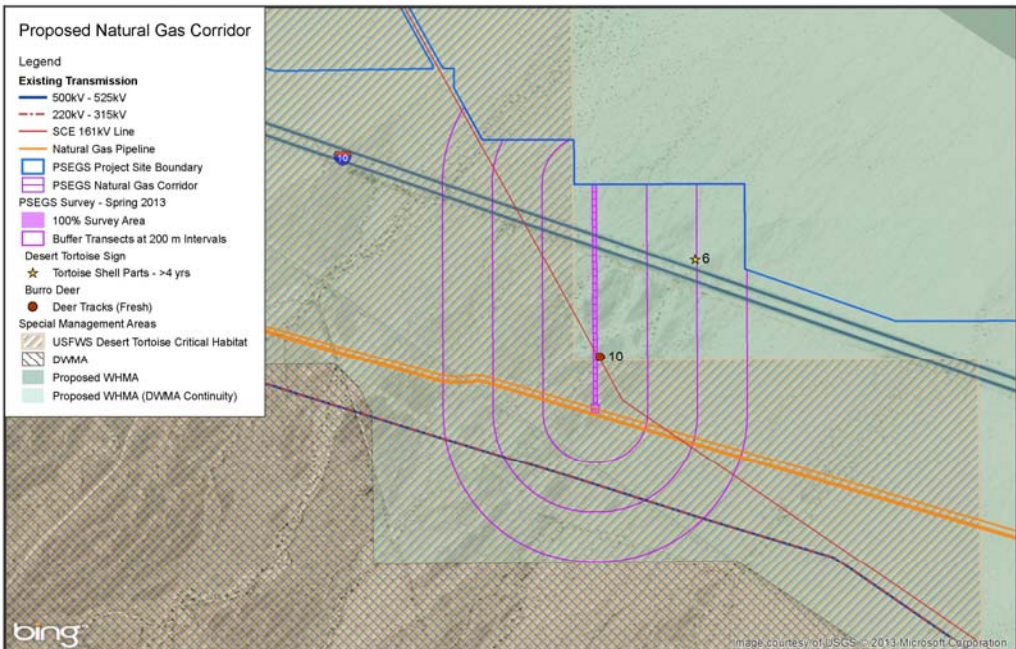
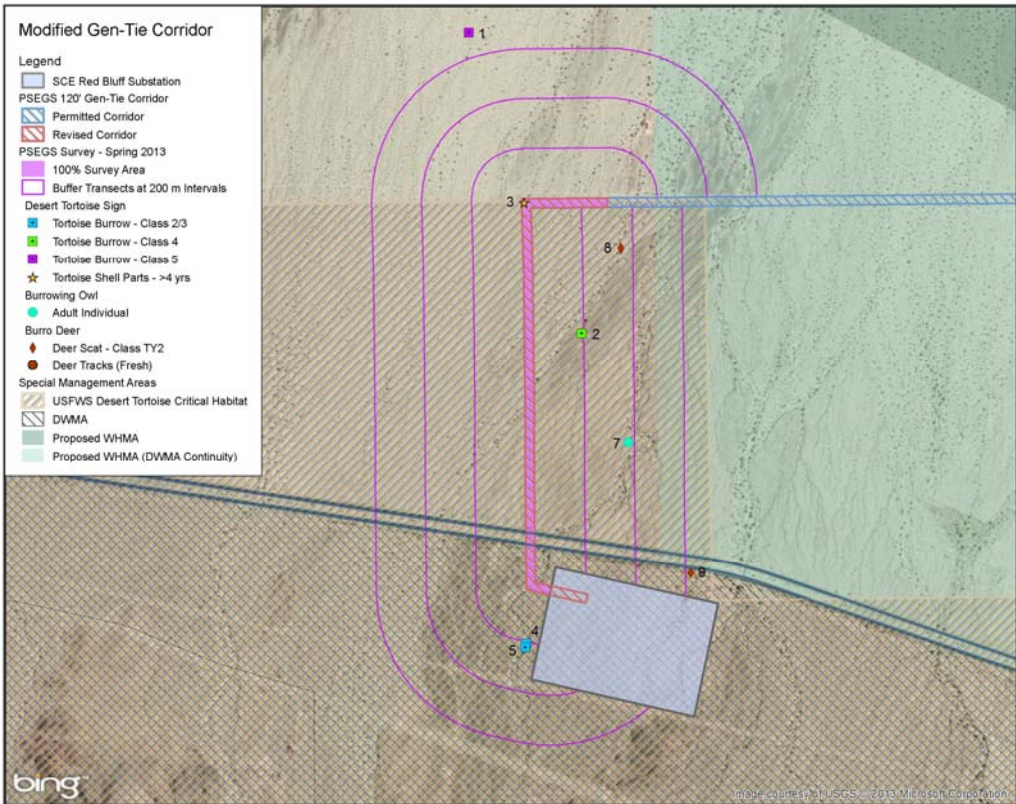
Table 2. Estimated Acres of Desert Tortoise Habitat Disturbed for the Modified Linear Facilities. (Source: BrightSource Energy, Inc.)

Location and Habitat Type	Total Modified Project	Phase 1	Phase 2	Total Minus Permitted Project
Modified Gen-Tie¹				
Total	18.9	18.9	0.0	4.5
Critical Habitat	18.1	18.1	0.0	3.7
Outside Critical Habitat	0.8	0.8	0.0	0.8
DWMA	2.3	2.3	0.0	1.5
Outside DWMA	16.6	16.6	0.0	2.99
Gas Pipeline				
Total	3.3	0.0	3.3	Not Applicable
Critical Habitat	0.9	0.0	0.9	Not Applicable
Outside Critical Habitat	2.4	0.0	2.4	Not Applicable
DWMA	0.0	0.0	0.0	Not Applicable
Outside DWMA	0.0	0.0	0.0	Not Applicable

1. Because the modified gen-tie was moved 1128 ft west, where it parallels the original gen-tie route, most of the acreage was already accounted for in the original BO, with the additional acreage only in the east-west portion, plus a small amount south of I-10. The permitted gen-tie intersected critical habitat for the entire north-south portion and the DWMA south of I-10.

Table 3. All Special-Status Species Sign Observed on the Modified Linear Facilities, Spring 2013. Individual sign corresponds to the map number on Figure 1.

Modified Project Element	Map # Corresponding to Figure 1	Element Part	Species	Sign Type	Date	Class (Condition or Age) and Size, as Appropriate	Comments
Gen-Tie							
	4	Buffer 200W, south of I-10	Desert Tortoise	Burrow	24 April	Class 2/3; ~350 mm	Caliche burrow in side of large (5-6 m deep) wash, with TY2 adult (19-21mm wide) scat on mound and inside. Burrow has stick gates for construction monitoring.
	5	Buffer 200W, south of I-10	Desert Tortoise	Burrow	24 April	Class 2/3; 630 mm	Caliche burrow in same wash as burrow above, ~20 m away. Cavern is very open inside and >2 m deep; scat.
	1	Buffer 600W, north of I-10	Desert Tortoise	Burrow	7 April	Class 5; ~340 mm	Collapsed
	2	Buffer 200E, north of I-10	Desert Tortoise	Burrow	7 April	Class 4; 380 mm	In sandy, silty wash bank; old, but good size and shape.
	3	Right-of-way	Desert Tortoise	Shell parts	7 April	>4 years; adult	Probably old female (very thin); 3-4 fragmented marginals and other plates
	7	Buffer 400E, north of I-10	Burrowing owl	Individual	7 April		1 bird in large wash, adult, flew. Could not locate burrow.
	8	Buffer 400E, north of I-10	Burro deer	Scat	7 April	TY2	Near the large wash that goes under wash in cement culvert.
	9	Buffer 600E, south of I-10	Burro deer	Scat	7 April	TY2	In wash next to freeway.
Natural Gas Pipeline							
	6	Buffer 400E, north of I-10	Desert Tortoise	Shell parts	29 April	>4 years; Carapace length ~140-160 mm	Right anal plate. In pack rat midden.
	10	Buffer 200E, south of I-10	Burro deer	Tracks	7 April	Fresh	



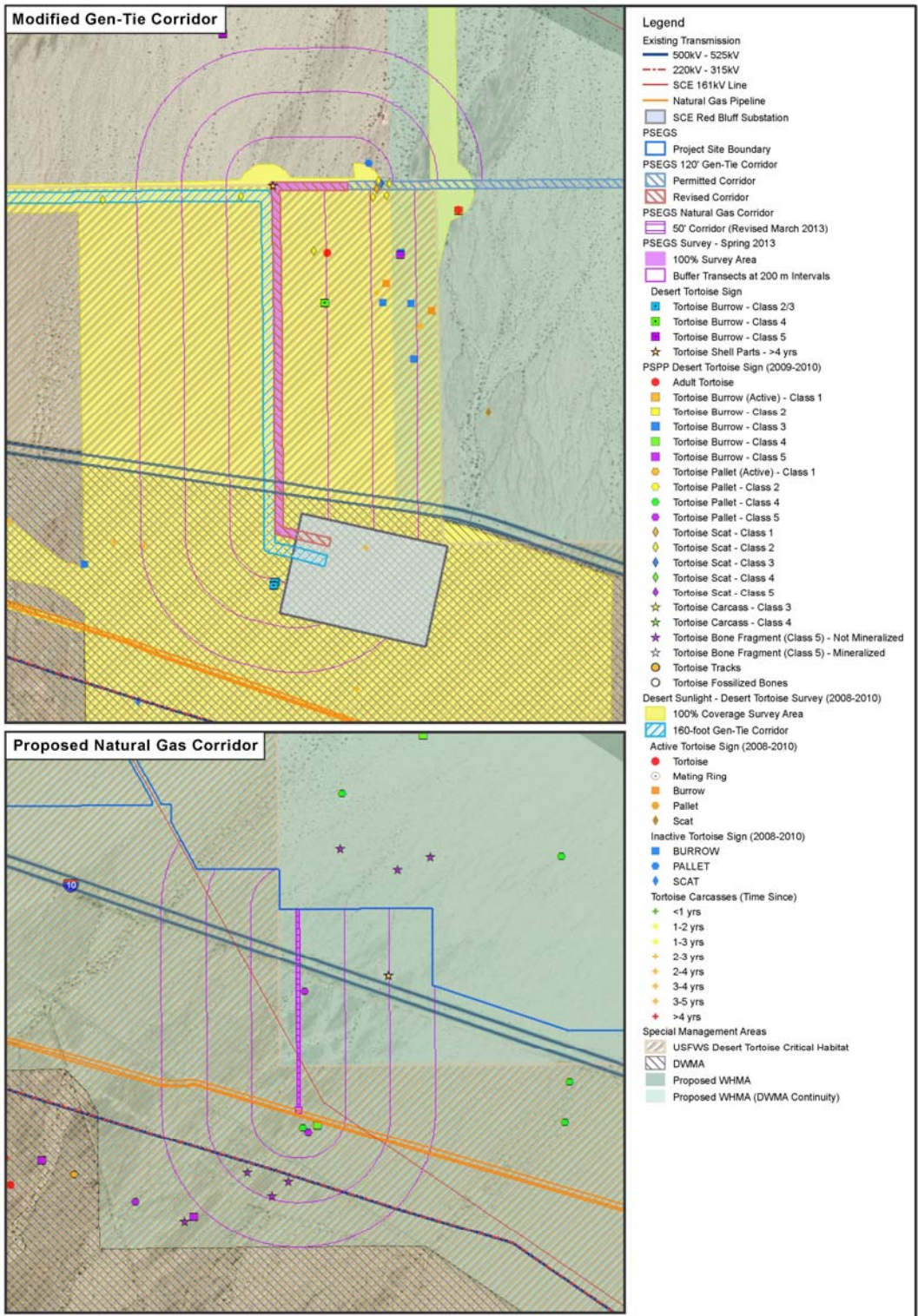
PSEGS Spring 2013 Desert Tortoise and Other Wildlife Data on the Modified Linear Facilities

Scale: 1:16,000
 0 0.25 0.5 Miles

Scale correct when printed at 11x17
 This map is for planning purposes only. The information herein was compiled from multiple sources and is considered to be reliable, however no representation is made concerning the accuracy of the data.

Project:	PSEGS	Figure 1
Date:	May 16, 2013	
Revision:	C-1000 nds	
Prepared By:	NS	

Path: C:\WORKSPACE\BrightSource_Energy\CA_Files\2013 Bio Surveys\Appendix Figure 2.mxd



BrightSource
 BrightSource Energy, Inc.
 1999 Harrison Street, Suite 2150
 Oakland, CA 94612

Cumulative Desert Tortoise Observations on the PSEGS Modified Linear Facilities, including Spring 2013

Scale: 1:16,000

0 0.25 0.5 Miles

Scale correct when printed at 11x17
 This map is for planning purposes only. The information herein was compiled from multiple sources and is considered to be reliable, however no representation is made concerning the accuracy of the data.

Project:	PSEGS	Figure 2
Date:	May 13, 2013	
Revision:	C-1000 nds	
Prepared By:	NS	

2.0 Western Burrowing Owl

Survey Methods

The most recent burrowing owl survey guidelines (California Department of Fish and Game [CDFG] 2012) were used to survey the Modified Linear Facilities. These require four field visits during the breeding season, where burrowing owl habitat exists. While no burrowing owls were observed in the vicinity of the Modified Linear Facilities during earlier surveys for PSPP (AECOM 2009, 2010), the Modified Linear Facilities offer suitable habitat, so the entire Modified Linear Facilities would be surveyed in 2013.

CDFW agreed to the following specific clarifications to the burrowing owl survey (M. Rodriguez, e-mail to A. Karl):

1. The first of the four required visits was concurrent with the comprehensive wildlife and desert tortoise survey, conducted on 7 April. Transects were walked at 10 m intervals to locate burrowing owl burrows or other suitable burrows, and also observe individual owls, if present. The survey coverage is explained above, in the section on desert tortoise methods.
2. The subsequent three surveys would be at least three weeks apart, with one after June 15. They would comprise walking surveys of the Modified Linear Facilities, with stop/scans at 100 m intervals. Surveys would be conducted at the recommended morning and evening windows and weather. Since we had already walked the entire Modified Linear Facilities at 10 m intervals to find burrows (which is the purpose of the recommended 20 m intervals in the CDFW guidance) and the habitat is very open (<5-7% cover), the subsequent transect widths would be 40 m. This would help us locate newly constructed burrows and other burrows in the buffer areas adjacent to the facility corridors. To this end, one transect would be walked in both the gen-tie corridor center with another at 40 m to each side of that transect, and one would be walked in the gas line corridor. Two additional buffer transects would be walked on each side of both facilities. All transects (three gen-tie, one gas line, plus two additional buffers on each side of both) would be walked each survey day, if there was sufficient time; if time was insufficient, then the buffer transects would be rotated with each visit to ensure that all areas are surveyed multiple times. Buffer transect locations would be moved slightly on subsequent visits so that more area could be viewed.

Survey Results

The results reported herein are for the initial, 7 April survey, during which one adult burrowing owl was observed on the 400 m buffer east of the modified gen-tie (Table 3, Figure 1). A search was made for the burrow, but none was found. No other burrowing owl sign was observed.

3.0 Other Special-status Wildlife

Survey Methods

Other special-status wildlife were sought during desert tortoise surveys (see above). The potential list of special-status species was provided to CEC on 25 March (Centerline 2013b). All observations of special-status wildlife species, their sign (e.g., scat, tracks, bones, feathers) and specialized habitats (e.g., water pooling areas) was sought, mapped, and recorded. Desert kit fox den complexes were mapped and described relative to age and size. An inventory was kept of all wildlife detected. All freeway underpasses in the buffer area were checked for bat sign.

Survey Results

Both scat and tracks of burro deer were observed in arboreal washes east of the modified gen-tie, both adjacent to the freeway (Table 3, Figure 1). One set of deer tracks was also observed in the buffer for the gas pipeline, south of the freeway.

No other special-status species, specialized habitats, or dens of kit fox were observed. However, other kit fox sign was observed, so they would be expected in the vicinity of the Modified Linear Facilities.

4.0 Special-Status Plant Species

Survey Methods

Special-status plant surveys were conducted in accordance with the CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009) and the U.S. Bureau of Land Management's (BLM's) *Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species* (BLM 2009). Although plant surveys typically follow BLM (2009) guidelines for an intuitive controlled survey, wherein a full survey is completed (i.e., 100 percent visual examination) in habitats with the highest potential for rare plants, with sampling in the remaining areas, the PSEGS survey covered such a small area that both linear routes were entirely surveyed. Surveys covered 100% of the Modified Linear Facilities routes, where plants might be directly affected during Project construction and Project operations, plus areas outside the routes where project activities might affect offsite populations. A list of potential special-status species was provided to the CEC on 25 March (Centerline 2013b).

All individuals of cacti, yucca and trees protected by the California Desert Native Plant Act (CDNPA) also were tallied, with mapping occurring by individuals, populations or Project segment, depending on biological relevancy or practicality. To augment the focused plant survey, special-status plant species and invasive plant concentrations were recorded, if observed, during the desert tortoise survey as well.

Surveys were conducted on 30 March. Primary production was average to better than average and annuals were fruiting, with many still flowering, enabling a comprehensive survey and good species identification. Tim Thomas and Glenn Rink, both of whom were very familiar with the area and species, including special-status species, conducted the surveys. They had just completed other identical surveys in the area and were completely aware of the phenology and current conditions of all plants in the area, so had excellent search images and honed identification skills.

Results

No special-status plant species were observed. No concentrations of invasive species were observed to grow on the Modified Linear Facilities, nor were any invasive species abundant.

LITERATURE CITED

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Conservation Area Plan Amendment and FEIS – Volume IV. BLM Palm Springs-South Coast Field Office, Palm Springs, CA. 338 pp.

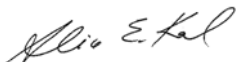
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Please feel free to contact me if you have further questions regarding these data. I can be reached at (530) 304-4121 or heliophile@mindspring.com

Respectfully,

A handwritten signature in cursive script that reads "Alice E. Karl".

Alice E. Karl, Ph.D.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**PALEN SOLAR ELECTRIC
GENERATING SYSTEM AMENDMENT**

**Docket No. 09-AFC-7C
PROOF OF SERVICE
(Revised 05/16/2013)**

SERVICE LIST:

APPLICANT

Palen Solar Holdings, LLC
Clay Jensen
410 South Rampart Blvd., Suite 390
Las Vegas, NV 89145
cjensen@brightsourceenergy.com

Palen Solar Holdings, LLC
Charlie Turlinski
1999 Harrison Street, Suite 2150
Oakland, CA 94612
cturlinski@brightsourceenergy.com

APPLICANT'S CONSULTANT

Centerline
Andrea Grenier
1420 E. Roseville Parkway
Suite 140-377
Roseville, CA 95661
andrea@agrenier.com

APPLICANT'S COUNSEL

Scott Galati, Esq.
Marie Fleming
Galati/Blek, LLP
455 Capitol Mall, Suite 350
Sacramento, CA 95814
sgalati@gb-llp.com
mfleming@gb-llp.com

INTERESTED AGENCY

California ISO
e-recipient@caiso.com

County of Riverside
Office of Riverside County Counsel
Tiffany North
3960 Orange Street, Suite 500
Riverside, CA 92501
tnorth@co.riverside.ca.us

INTERVENORS

Center for Biological Diversity
Lisa T. Belenky, Senior Attorney
351 California St., Suite 600
San Francisco, CA 94104
lbelenky@biologicaldiversity.org

Center for Biological Diversity
Ileene Anderson
Public Lands Desert Director
PMB 447, 8033 Sunset Boulevard
Los Angeles, CA 90046
ianderson@biologicaldiversity.org

Basin and Range Watch
Kevin Emmerich
Laura Cunningham
P.O. Box 153
Baker, CA 92309
atomictoadranch@netzero.net
bluerockiguana@hughes.net

Californians for Renewable Energy
Alfredo Acosta Figueroa
424 North Carlton Avenue
Blythe, CA 92225
lacunadeaztlan@aol.com

California Unions for Reliable Energy
Tanya A. Gulesserian
Elizabeth Klebaner
Adams Broadwell Joseph & Cardoza
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080
tgulesserian@adamsbroadwell.com
eklebaner@adamsbroadwell.com

Hildeberto Sanchez, Eddie Simmons,
and Laborers' International Union of
North America, Local Union No. 1184
c/o Richard T. Drury
Christina M. Caro
Lozeau|Drury LLP
410 12th Street, Suite 250
Oakland, CA 94607
richard@lozeaudrury.com
christina@lozeaudrury.com

ENERGY COMMISSION STAFF

Christine Stora
Project Manager
christine.stora@energy.ca.gov

Jennifer Martin-Gallardo
Staff Counsel
jennifer.martin-gallardo@energy.ca.gov

**ENERGY COMMISSION –
PUBLIC ADVISER**

Blake Roberts
Assistant Public Adviser
publicadviser@energy.ca.gov

COMMISSION DOCKET UNIT

California Energy Commission
Docket Unit
Attn: Docket No. 09-AFC-07C
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

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Adviser for Facility Siting

DECLARATION OF SERVICE

I, Marie Fleming, declare that on May 21, 2013, I served and filed copies of the attached **PALEN SOLAR GENERATING ELECTRIC SYSTEM SUMMARY OF SPRING WILDLIFE AND PLANT SURVEYS**, dated May 16, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: <http://www.energy.ca.gov/sitingcases/palen/compliance/>.

The document has been sent to the other persons on the Service List above in the following manner:

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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: May 21, 2013



Marie Fleming