ATTACHMENTS TO COMMENT LETTER 20: EDIE HARMON

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FEB 2 4 2015

IMPERIAL COUNTY PLANNING & DEVELOPMENT SERVICES Exhibit 33

SUMMARY: Pursuant to the Federal Advisory Committee Act, Public Law 92–463, notice is hereby given that the Automobile Manufacturing Sector Subcommittee of the Common Sense Initiative Council will hold an open meeting via conference call on September 26, 1996.

OPEN MEETING NOTICE: Notice is hereby given that the Environmental Protection Agency is holding an open meeting via conference call of the Automobile Manufacturing Sector Subcommittee of the Common Sense Initiative Council on September 26, 1996. The meeting will begin at 10:00 a.m. EDT and run until 2:00 p.m. EDT.

This meeting will be a follow-up to previous discussions regarding regulatory projects to be addressed by the CSIC-AMS. The CSIC-AMS is planning to decide whether or not there are regulatory issues they would like to address for the automobile manufacturing industry in this forum. The CSIC-AMS will also receive brief updates from the Life-Cycle Management/Supplier Partnership Project Team and Alternative Sector Regulatory System/Community Technical Assistance Project Team.

A limited number of lines have been reserved for public participation. Lines will be made available through reservations on a first come, first serve basis. Advance registration is required to obtain a reservation. Any person or organization interested in participating in the meeting should contact Keith Mason, Alternate Designated Federal Officer, no later than September 23, 1996, at (202) 260-1360. Each individual or group wishing to make oral presentations will be allowed a total of three minutes. For further information concerning this meeting, contact Keith Mason, Alternate DFO on (202) 260-1360, Julie Lynch, Alternate DFO on (202) 260-4000, or Carol Kemker, DFO, on (404) 347-3555, extension 4222.

INSPECTION OF CSIC DOCUMENTS: After the meeting, documents relating to this meeting, together with the official minutes, will be available for public inspection in Room 2821 Mall of EPA Headquarters, Common Sense Initiative Program Staff, 401 M Street, SW., Washington, DC 20460, phone (202) 260–7417. CSIC information can be accessed electronically through contacting Katherine Brown at: brown.katherines@epamail.epa.gov.

Dated: September 4, 1996.

Robert English,

Acting Designated Federal Officer. [FR Doc. 96-23064 Filed 9-9-96; 8:45 am] BILLING CODE 6560-50-P [OPPTS-44630; FRL-5392-4]

TSCA Chemical Testing; Receipt of Test Data

AGENCY: Environmental Protection Agency (EPA). ACTION: Notice.

SUMMARY: This notice announces the receipt of test data on refractory ceramic fibers (RCFs) (CAS No. 142844-00-6), submitted pursuant to a Testing Consent Order under the Toxic Substances Control Act (TSCA). Publication of this notice is in compliance with section 4(d) of TSCA.

FOR FURTHER INFORMATION CONTACT: Susan B. Hazen, Director, Environmental Assistance Division (7408), Office of Pollution Prevention and Toxics, Environmental Protection Agency, Rm. E-541A, 401 M St., SW., Washington, DC 20460, (202) 554-1404, TDD (202) 554-0551; E-mail: TSCA-

Hotline@epamail.epa.gov. SUPPLEMENTARY INFORMATION: Section 4(d) of TSCA requires EPA to publish a notice in the Federal Register reporting the receipt of test data submitted pursuant to test rules promulgated under section 4(a) within 15 days after it is received. Under 40 CFR 790.60, all results of testing conducted pursuant to a consent order must be announced to the public in accordance with the procedures specified in section 4(d) of TSCA.

I. Test Data Submissions -

Test data for refractory ceramic fibers were submitted by three member companies of the Refractory Ceramic Fiber Coalition (Carborundum Company, Premier Refractories and Chemicals, Incorporated, and Thermal Ceramics, Incorporated) pursuant to a Testing Consent Order at 40 CFR 799.5000. They were received by EPA on June 23, 1996. The submission describes workplace exposure monitoring data from RCFC company facilities, as well as from their customers' facilities. The customers selected include those chosen at random and those who specifically requested monitoring. Air monitoring samples were collected from employees engaged in RCF fiber production and processing, or use in functional categories such as forming, finishing, and installation.

RCFs are used as insulation for industrial insulation applications such as high temperature furnaces, heaters, and kilns. RCFs are also used in automotive applications, aerospace uses, and in certain commercial appliances such as self-cleaning ovens.

EPA has initiated its review and evaluation process for these data submissions. At this time, the Agency is unable to provide any determination as to the completeness of the submissions.

II. Public Record

EPA has established a public record for this TSCA section 4(d) receipt of data notice (docket number OPPTS-44630). This record includes copies of all data reported in this notice. The record is available for inspection from 12 noon to 4 p.m., Monday through Friday, except legal holidays, in the TSCA Nonconfidential Information Center (NCIC) (also known as the TSCA Public Docket Office), Rm. NE-B607, 401 M St., SW., Washington, DC 20460.

Authority: 15 U.S.C. 2603.

List of Subjects

Environmental protection, Test data. Dated: August 28, 1996.

Williams H. Sanders III,

Director, Office of Pollution Prevention and Toxics.

[FR Doc. 96-22966 Filed 9-9-96; 8:45 am] BILLING CODE 6560-50-F

[FRL-5560-8]

Ocotillo-Coyote Wells Aquifer in Imperial County, California; Sole Source Aquifer Final Date:mination

AGENCY: Environmental Protection Agency.

ACTION: Notice.

SUMMARY: Notice is hearby given that, pursuant to Section 1424(e) of the Safe Drinking Water Act, the Regional Administrator of the Environmental Protection Agency (EPA) has determined that the Ocotillo-Coyote Wells Aquifer, underlying portions of Imperial County, California, is the sole or principal source of drinking water for Ocotillo, Nomirage, Yuha Estates, and Coyote Wells and that this aquifer, if contaminated, would create a significant hazard to public health. As a result of this action, all Federal financially assisted projects constructed in the Ocotillo-Coyote Wells area and its streamflow source zones will be subject to EPA review to ensure that these projects are designed and constructed such that they do not create a significant hazard to public health.

DATES: This determination shall be promulgated for purposes of judicial review at 1:00 P.M. Eastern time on September 24, 1996.

ADDRESSES: The data on which these findings are based are available to the public and may be inspected during normal business hours at the U.S.

47752

Environmental Protection Agency, Region 9, Ground Water Protection Section, 75 Hawthorne Street, San Francisco, California 94105.

FOR FURTHER INFORMATION CONTACT: Wendy L. Melgin, Hydrogeologist, Ground Water Protection Section, U.S. EPA Region 9, at 415-744-1831.

SUPPLEMENTARY INFORMATION:

I. Background

Section 1424(e) of the Safe Drinking Water Act (42 U.S.C., 300f, 300h-3(e), P.L. 93-523) states:

(e) If the Administrator deter aines on his own initiative or upon petition, that an area has an aquifer which is the sole or principle drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

On May 2, 1994, EPA received a petition from "The Ocotillo Club", which petitioned EPA to designate the Ocotillo-Coyote Wells Aquifer as a sele source aquifer. A public hearing was conducted on September 21, 1995 in Ocotillo, California, and the public was permitted to submit comments and information on the petition until March 25, 1996.

II. Basis for Determination

The factors to be considered by the Administrator in connection with the designation of an area under Section 1424(e) are: (1) Whether the Ocotillo-Coyote Wolls Aquifer is the crea's sole or principle source of drinking water and (2) whether contamination of the aquifer would create a significant hazard to public health.

On the basis of technical information available to this Agency, the Administrator has made the following findings, which are the bases for the determination noted above:

1. The Ocotillo-Coyote Wells Aquifer currently serves as the "sole source" of drinking water for the residents of Ocotillo, Coyote Wells, Yuha Estates and Nomirage.

2. Contamination of the aquifer would create a significant hazard to public health. There is no economically feasible alternative drinking water source near the designated area. 3. The determination of the boundary of the Sole Source Aquifer is consistent with EPA's Sole Source Aquifer designation Decision Process: Petition Review Guidance (Office of Ground Water Protection, 1987).

III. Description of the Ocotillo-Coyote Wells Sole Source Aquifer

The Ocotillo-Coyote Wells Sole Source Aquifer underlies an 87-square mile area in the southwestern corner of Imperial County, near Ocotillo, California. Ocotillo is approximately 25 miles west of El Centro and 90 east of San Diego. Ground water is found primarily in the saturated Quaternaryage alluvial valley-fill deposits, which are derived from the surrounding mountains and consist of fine sand and gravel interspersed with silts and clays of varying thickness and extent.

The designated area includes the surface area above the alluvial unconfined aquifer and the surrounding recharge areas located in the Jacumba and Coyote Mountains. The boundaries of the sole source aquifer are largely topographically defined along major surface watershed boundaries in the Jacumba and Coyote Mountains, with the exception of the Elsinore Fault boundary and the boundary with the U.S.-Mexican border. The Elsinore fault was chosen as a boundary because it separates the sole source aquifer area, which contains high quality, potable water, from high saline, non-potable water to the east of the fault.

IV. Information Utilized in Determination

The information utilized in this determination includes the petition, written and verbal comments submitted by the public and various technical publications. The above data are available to the public and may be inspected during normal business hours at the U.S. Environmental Protection Agency, Region IX, Ground Water Protection Section, 75 Hawthorne Street, San Francisco, California 94105.

V. Project Review

EPA Region IX will work with the Federal agencies that may in the future provide financial assistance to projects within the boundaries of the Ocotillo-Coyote Wells Sole Source Aquifer. EPA will seek to develop agreements with other Federal Agencies whereby EPA will be notified of proposed commitments of Federal financial assistance for projects which could contaminate the aquifer. In the event that a Federal financially assisted project could contaminate the Ocotillo-Coyote Wells Sole Source Aquifer through its recharge zone so as to create a hazard to public health, no commitment of Federal financial assistance will be made. However, a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to insure it will not contaminate the aquifer.

Although the project review process cannot be delegated, EPA will consider, to the maximum extent possible, any existing or future state, tribal, and local control mechanisms in protecting the ground water quality of the aquifer.

VI. Summary of Public Comments

The public hearing, held in Ocotillo, California on September 21, 1995, was attended by 28 p.ople, with 9 pecple speaking. Of those who expressed an opinion, four supported the designation of a Sole Source Aquifer. Of those who submitted comments, fifteen opposed the designation and 29 supported the designation. The public's written and oral comments are fully addressed in EPA's Responsiveness Summary which is available to the public during normal business hours at the U.S. Environmental Protection Agency Region IX, Ground Water Protection Section, 75 Hawthorne Street, San Francisco, California 94105.

Dated: August 14, 1996. Alexis Strauss, Acting Regional Administrator. [FR Doc. 96-23066 Filed 9-9-96; 8:45 am]

BILLING CODE 6580-50-P

FARM CREDIT ADMINISTRATION

Farm Credit Administration Board; Regular Sunshine Meeting

AGENCY: Farm Credit Administration. JUNNARY: Notice is hereby given, pursuant to the Government in the Sunshine Act (5 U.S.C. 552b(e)(3)), of the forthcoming regular meeting of the Farm Credit Administration Board (Board).

DATE AND TIME: The regular meeting of the Board will be held at the offices of the Farm Credit Administration in McLean, Virginia, on September 12, 1996, from 10:00 a.m. until such time as the Board concludes its business.

FOR FURTHER INFORMATION CONTACT: Floyd Fithian, Secretary to the Farm Credit Administration Board, (703) 883– 4025, TDD (703) 883–4444.

ADDRESSES: Farm Credit Administration, 1501 Farm Credit Drive, McLean, Virginia 22102-5090.



Map showing boundaries of Ocotillo-Coyote Wells aquifer on U.S.G.S. topographic maps, Western United States 1:250,000 series, San Diego (NI 11-11) and El Centro (NI 11-12) quadrangles.

FACT SHEET: The EPA's Sole Source Aquifer Program

The U.S. EPA's Sole Source Aquifer Program was established under Section 1424(e) of the Safe Drinking Water Act (SDWA). Since 1977, it has been used to help prevent contamination of ground water by federally-funded projects and to increase public awareness of ground water resources.

How Did This Program Start?

SDWA regulations Implementing the sole source aquifer (SSA) statute were first proposed in 1977 for the Edwards Underground Reservoir in San Antonio, Texas. These regulations guided the EPA in the subsequent designation of 64 SSAs across America.

What Does the Sole Source Aquifer Program Do?

The SSA program provides for EPA review of projects that are financially assisted through federal grants or loan guarantees. These projects are evaluated to determine whether they have the potential to contaminate a SSA. If there is such a potential, the projects must be modified. or federal funding can be denied. This does not mean that the SSA Program can delay or stop development of landfills, publicly owned treatment works, or other publicly or privately owned facilities. Nor can it impact any direct federal environmental regulatory or remedial programs, such as permit decisions. Its review

authority extends only to projects funded with federal assistance that are to be implemented in designated SSA areas. Typical projects reviewed by EPA include housing projects funded by U.S. Housing and Urban Development, and highway construction and expansion projects funded by the Federal Highway Administration.

How do you Designate a Source of Drinking Water as "Sole Source"?

As the name implies, only a "sole source" aquifer can qualify for the program. To be a SSA, the aquifer must meet two EPA criteria:

- It must supply more than 50% of a communities drinking water.
- It must be the only available local or regional source of drinking water.

Any individual, corporation, association, or federal, state, or local agency may petition EPA for SSA designation, provided that the petition satisfies certain hydrogeological information. The Sole Source Aquiřei Designation Petitioner Guidance document provides more information about preparing and submitting a petition, and is available from EPA Regional Offices.

What About Boundaries?

Determination of SSA boundaries is a difficult aspect of the designation process since the "designated area includes the surface area above the aquifer and its recharge area". Thus, some SSAs extend across state boundaries, such as the 10,000 sq.mile Eastern Snake River Aquifer, which includes portions of Idaho, Nevada, Utah, and Wyoming

Where are the Sole Source Aquifers?

To date, EPA Region 9 has designated nine SSAs:

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- Upper Santa Cruz and Avra Basin Aquifer -Arizona
- Naco-Bisbee Aquifer -
 - Fresno Aquifer -California
- Scotts Valley Aquifer -California
- Campo- Cottonwood Aquifer - California
- < Ocotillo-Coyote Wells -California
- < Southern Oahu Aquifer -Hawaii
- < Molokai Aquifer Hawaii
- Northern Guarn Aquifer

Further Information

For more information on how the Sole Source Aquifer iProgram can bunefit Youin community, please contact Wendy Melgin, Hydrogeologist at (415) 744-1831 or Elizabath Janes, Public Outreach Coordinator at (415) 744-1834, Source Water Protection Section (W-6-3), U.S. EPA Region IX, 75 Hawthorne, San Francisco, CA 94105.

Locations of EPA Region 9 Sole Source Aquifers

1.1



Exhibit 34

Ocotillo-Coyote Wells Sole Source Aquifer

Designated Area

Notes and Explanation:

The Ocotillo-Coyote Wells Sole Source Aquifer was designated under the authority of Section 1424(e) of the Safe Drinking Water Act, Federal Register Citation- 61 FR 47752, Publication Date- 09/10/96. Please contact US EPA Region IX (Hillary Hecht, 415.972.3530) for assistance in determining place locations with respect to the project review area.

Map Status and Disclaimer:

Please note that this working map is a computer representation compiled by the Environmental Protection Agency (EPA) from sources which have supplied data or information that may have not been verified by the EPA. This data is offered here as a general representation only, and is not to be used for commercial purposes without verification by an independent professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.



Exhibit 46



Exhibit 47

Gmail - Comments on IC BEIR which were included as attachment to same Harmon 8-22-2014 e... Page 1 of 3



Desert Harmon <desertharmon@gmail.com>

Comments on IC BEIR which were included as attachment to same Harmon 8-22-2014 email as comments on NOP for IC Renewable Energy GPU are missing from 27appa-NOP-IS-comments Appendix FWD: NOP for Renewable Energy & Transmission Element, Imperial County General Plan Update and IC Background **Environmental Inventory Report with 3 Attachments**

1 message

Edie Harmon < <u>desertharmon@gmail.com</u> >	Tue, Jan 27, 2015 at 10:40 PM
To: Michael Rood < michaelrood@co.imperial.ca.us >, Jim Minnick < jimminnick@cc	.imperial.ca.us>
Cc: Katherine Turner < <u>katherineturner@co.imperial.ca.us</u> >, laurens silver < <u>larrysilv</u>	<u>/er@earthlink.net</u> >, svolker
<svolker@volkerlaw.com>, Donna Tisdale! <<u>Tisdale.donna@gmail.com</u>>, Pat Flan</svolker@volkerlaw.com>	agan < <u>patflanagan29@gmail.com</u> >,
Terry Weiner < <u>terryweiner@sbcglobal.net</u> >, Ileene Anderson < <u>ianderson@biologic</u>	aldiversity.org>, Scott Cashen
<scottcashen@gmail.com>, Luis Olmedo <comitecivico@sbcglobal.net>, Lisa Bele</comitecivico@sbcglobal.net></scottcashen@gmail.com>	enky
<pre><lbelenky@biologicaldiversity.org>, Andy Horne <andyhorne@co.imperial.ca.us>,</andyhorne@co.imperial.ca.us></lbelenky@biologicaldiversity.org></pre>	Thomas Zale < <u>tzale@blm.gov</u> >,
Renee Owens < <u>renee@wildlifezone.net</u> >	
Bcc: Edie Harmon < <u>desertharmon@gmail.com</u> >, "Vintze, Roger@DTSC" < <u>Roger.\</u>	/intze@dtsc.ca.gov>, Nick Ervin
<desertguy1@sbcglobal.net>, "Smith, David" <david.smith@spreckelssugar.com>,</david.smith@spreckelssugar.com></desertguy1@sbcglobal.net>	, "Ogrey, Anne"
< <u>Anne.Ogrey@spreckelssugar.com</u> >	

Mr. Rood,

I am once again concerned that not only did the DPEIR Appendix with comments for the Renewable Energy General Plan Update not include any of the Harmon, et al exhibits for which pdf files were provided, but for which there were no links to journals, but it also failed to include our comments on the Imperial County Baseline Environmental Inventory Report which was included as an attachment to the same electronic submission as the Comments for organizations on the NOP for the General Plan. (see forwarded email with attachments) Paragraph 64 of our letter (which begins at 27appa-nop-is-comments pdf at p 95 of 125)specifically states:

"See additional issues in the comments on the IC BEIR which is incorporated by reference as part of these NOP issues to be addressed in the EIR. Why?Because we have been told by Brian Mooney that the BEIR is a part of the RETE GPU documentation." Those IC BEIR comments were attached with the comments on the NOP as a separate document.

By contrast, the DPEIR at 27appa-nop-is-comments beginning on p. 60 of 125 does include the comments on the Baseline Environmental Inventory Report that were submitted by the Center for Biological Diversity. So, the real question is why did the Draft PEIR Appendix choose to include the comments on the BEIR from one organization, but then fail to include the comments on that same document that were submitted on behalf of other organizations?

This is not the first time that comments timely submitted to the Planning Department have been excluded from public review. It also raises the question about whether timely submissions from other individuals or organizations were omitted from the appendix for comments...

I would appreciate a response from your office.

----- Forwarded message------

From: Microsoft Outlook </Brownersproupinc.com> Date: Fri, Aug 22, 2014 at 4:44 PM

Subject: Undeliverable: NOP for Renewable Energy & Transmission Element, Imperial County General Plan Update and IC Background Environmental Inventory Report To: desertharmon@gmail.com

Delivery has failed to these recipients or groups:

Gmail - Comments on IC BEIR which were included as attachment to same Harmon 8-22-2014 e... Page 2 of 3

oalvorado@chambersgroupinc.com

The e-mail address you entered couldn't be found. Please check the recipient's e-mail address and try to resend the message. If the problem continues, please contact your helpdesk.

Generating server: CGI-EX01.cgi-ad.com

oalvorado@chambersgroupinc.com

#550 5.1.1 RESOLVER.ADR.RecipNotFound; not found ##

Gmail - Comments on IC BEIR which were included as attachment to same Harmon 8-22-2014 e... Page 3 of 3 ------ Forwarded message-------

-

From: Edie Harmon <<u>desertharmon@gmail.com</u>>

To: Jim Minnick <<u>jimminnick@co.imperial.ca.us</u>>, Patricia Valenzuela <<u>patriciavalenzuela@co.imperial.ca.us</u>>, Andy Horne <<u>andyhorne@co.imperial.ca.us</u>>, <<u>bmooney@mooneyplanning.com</u>>,

<<u>oalvorado@chambersgroupinc.com</u>>

Cc: Terry Frewin <terrylf@cox.net>, Donna Tisdale! <Tisdale.donna@gmail.com>, Terry Weiner

<<u>terryweiner@sbcglobal.net</u>>, Pat Flanagan <<u>paflanagan29@gmail.com</u>>, Edie Harmon

<<u>desertharmon@gmail.com</u>>, laurens silver <<u>larrysilver@earthlink.net</u>>, Lisa Belenky

<<u>lbelenky@biologicaldiversity.org</u>>, svolker <<u>svolker@volkerlaw.com</u>>, Ileene Anderson <<u>ianderson@biologicaldiversity.org</u>>, Scott Cashen <<u>scottcashen@gmail.com</u>>, Luis Olmedo <comitecivico@sbcglobal.net>

Date: Fri, 22 Aug 2014 16:43:13 -0700

Subject: NOP for Renewable Energy & Transmission Element, Imperial County General Plan Update and IC Background Environmental Inventory Report

Mr. Minnick,

These written comments are timely submitted on behalf of both individuals and organizations. On August 21, 2014 I submitted two DVDs, one was for Exhibit 1, the Pelley video of the Ocotillo Community meeting for the General Plan Update, and the second included pdf copies of the exhibits available at the time of submission. Additional references and exhibits have been included and are identified in these letters. pdfs for additional exhibits will be included with this email submission. The letter referencing the NOP and the comments on the IC BEIR and exhibit in this email together with the already submitted discs are to be considered as comments and concerns to be addressed in the EIR in response to the NOP.

Please notify each of those with email addresses of the release of the DEIR. I respectfully request a paper copy if and when one becomes available.

Thank you, Sincerely, Edie Harmon <u>desertharmon@gmail.com</u> 619-729-7178

3 attachments

Exhibit 32 SDG&E prepares for future seismic events-tdworld.pdf 180K

NOP re GPU re Renewable energy & transmission FINAL.pdf 278K

Cmts re Baseline Enviro Inventory Rept 6-14 re Renewable E GPU FINAL w tables.pdf $451 \rm K$

Exhibit 48

- To: Patricia Valenzuela, Imperial County Planning Dept. <u>patriciavalenzuela@co.imperial.ca.us</u> Andy Horne <u>AndyHorne@co.imperial.ca.us</u>, Brian Mooney <u>bmooney@mooneyplanning.com</u> Oliver Alvorado <u>oalvorado@chambersgroupinc.com</u>
- From: Edie Harmon <u>desertharmon@gmail.com</u> also for the Sierra Club CNRCC Desert Committee, BackCountry Against Dumps (BAD), Backcountry Resource Advocacy Group (BRAG), Comite Civico Del Valle, Inc. and Morongo Basin Conservation Association, Pat Flanagan
- cc: Terry Freewin, Chair, Sierra Club CNRCC Desert Committee; Donna Tisdale, BAD, BRAG; Terry Weiner DPC; Pat Flanagan; Larry Silver, CELP; Steven Volker, Volker Law; Lisa Belenky, CBD, Luis Olmedo
- Date: August 22, 2014
- Re: **Baseline Environmental Inventory Report (ICBEIR)** Draft of June 2014 for **Imperial County Geothermal/alternative Energy and Transmission Element Update** by Chambers Group, Inc., San Diego, CA.

These comments will not attempt to address all the issues and problems, incorrect and/or irrelevant information in the June 2014 Draft Baseline Environmental Inventory Report made available to the Technical Advisory Group for the Imperial County Geothermal/Alternative Energy and Transmission Element Update and that was a subject for discussion at the June 11, 2014 TAG meeting. The public was informed that the 6-2014 Draft IC BEIR is now the Final Baseline Environmental Inventory Report (ICBEIR) at the community meeting in Ocotillo on June 19, 2014, and <u>no comments from the public</u> were invited. References herein to the 1993 Imperial County General Plan are to the paper copy I have of both the EIR and the General Plan Update itself. Many of the Figures and errors in the 1993 General Plan were carried over to the 2010 General Plan that I downloaded, and presumably any more recent versions.

If the Draft ICBEIR of 6-2014 is indeed the Final BEIR, then Imperial County has some very serious problems ahead! Did Andy Horne, Brian Mooney or anyone in the Imperial County Planning Dept., or Oliver Alvorado actually read the IC BEIR 6-2014 draft with a critical eye and point out inconsistencies, errors, and/or needed corrections? If not, why not? How very sad if the 6-2014 ICBEIR is intended to represent the best and most accurate efforts of the consultants and if no corrections are intended.

ICBEIR source was copied from an email message dated June 10, 2014:

The Draft Imperial County Baseline Environmental Inventory Report has been uploaded to the Chambers Group ftp site and can be accessed at the following location:

<u>https://chambersgroupinc.egnyte.com/publicController.do?folderName=20140605&fileN</u> <u>ame=2JAURGdgeE#folder-link/</u> You do not need a login or password to access this folder. The pdf file saved in the folder is a complete file that includes all of the appendices.

Sec. 2.0 - Aesthetics and Glare

2.4.1 <u>Scenic visual resources (beginning IC BEIR at 23 of 423)</u> Why are the text and map for this section identifying the Jacumba Mountains Wilderness area at SW corner of Imperial County inconsistent with the text for the existing conditions for biological resources at IC BEIR 53 which fails to identify the Jacumba Mts, Coyote Mts or the Fish Creek Mountains in the SW part of the County? (See AAA map for San Diego Region and IC BEIR at 60 of 423 Fig 5-4 Sensitive and designated habitats. Also see figures in 1993 General Plan Update. Neither the AAA map nor the IC BEIR Fig 5-4 depict the Santa Rosa Mountains or Orocopia Mountains as being features

identified in Imperial County.

<u>Salton Sea</u> is identified at IC BEIR (26 of 423) as being "approximately 245,000 acres. However, the Draft Program EIR for the 1993 Imperial County General Plan at p. III-2 states the Salton Sea was calculated to have an acreage of 211,840 acres based on an elevation of -230 ft. Does this mean that the area of the Salton Sea in Imperial County has grown by 33,160 acres during the past 21 years? The Salton Sea authority states that elevation is -227 ft elevation and the area is 376 sq. miles or 240,640 acres. (See: http://saltonsea.ca.gov/geography.html) (Exhibit 23) At least one of these figures is incorrect or dates for Salton Sea size must be provided. Driving past the Salton Sea on the east side on 8/15/2014 and 8/18/2014 it appeared that the water line has moved further from the vegetated shoreline and size of the water filled Salton Sea is declining rather than increasing.

- 2.4.3 <u>Sources of light and glare</u> should include night time reflections of starlight and moonlight from solar facilities. Additional night light sources include bright lighting at Plaster City and state prisons which can be seen at great distances. Also light from the airport at Imperial can be seen at great distances . Especially annoying and visible for more than 40 miles are the flashing red lights on the wind turbines surrounding Ocotillo, they are especially a distraction to drivers along I-8. This must be corrected at ICBEIR p. 29 of 423. There is also a problem with glare and glint at photovoltaic projects during the day and the reflective surfaces also appear as water to birds and bats at night in both moonlight and starlight as confirmed by biologists with US Fish and Wildlife Service.
- 2.4.4 <u>**BLM Visual Resource Mgmt areas.</u>** (ICBEIR p. 29 of 423) Please note that visual resources are a significant component of "Sacred Geography" and played an important role in BLM's 2001 decision to deny a plan of operations for the proposed Glamis Imperial Mine project on lands in eastern Imperial County deemed sacred to Native Americans. I guess there are none so blind as those who refuse to see the tremendous biological diversity and those who refuse to listen to Native American concerns about the BLM lands designated Multiple Use Class L, with travel limited to approved routes of travel since 1980 because of sensitive biological resources and significance to Native American archeological and cultural resources.</u>

In the opinion of many, that BLM allowed the destruction of Class L lands and development of a wind energy project in a place with such low wind speeds shames both BLM, the agency with land management responsibility, and the County which signed an Implementation agreement for mitigation and monitoring that was beyond the staffing and expertise of local BLM staff. (See: Raftery 2013-04-26," Native American Heritage Commission Declares Ocotillo Wind Site a Sacred Site; Asks Attorney General to Weigh Legal Action" in East County Magazine. http://eastcountymagazine.org/print/13103.) (Exhibit 24) . See also: "Was it Fraud? Experts Raise Serious Questions after Low First-year Energy Production at Ocotillo Wind Project" April 30, 2014 http://www.eastcountymagazine.org/print/15554 (Exhibit 25) It is not only those residing near the project, but Native Americans, especially the Viejas and Quechans have continually opposed the project. *"It was heartbreaking to see this project desecrate such a historically and culturally significant landscape, and it's even worse when you find out that it was built on false claims by the developer, and with the assistance of the BLM. "-- Anthony Pico, Chairman, Viejas Band of Kumeyaay Indians.*

2.5.1 <u>Constraints due to regulatory requirements</u>. Surely no one could ever believe that installing white, monster size wind turbines on public lands considered sacred to so many Native American tribes and destroying the essence of the sacred geography of the area is in any way consistent with any goals and objectives to preserve visual resources of Imperial County, especially when such eyesores are the first thing one sees when entering the desert from the mountains along Interstate 8 from the west. How in the world can the county or any consultant believe that such visual intrusions "enhance the aesthetic character of the region" (as stated at ICBEIR p. 33 of 423)? And

how does inserting wind turbines contribute to "encouraging the preservation and enhancement of the natural beauty of the desert and mountain landscape"? (ICBEIR p. 33 of 423 as referencing the IC General Plan.)

2.6 **Opportunities** Is it the intent of this document to facilitate an <u>official designation of Imperial</u> **County as a National Sacrifice Area (NSA) and/or a California Sacrifice Area (CSA)** because those developing the plan do not have the ability to see the importance or significance and beauty of the desert resources that have previously been protected by BLM for their biological and cultural resource values? If "Lands not federally owned or managed that have been previously disturbed or developed may present opportunities for developing alternative energy resources" (ICBEIR p. 34 of 423), may we then conclude that federally owned or managed lands that have NOT been previously disturbed or developed should NEVER have been developed for such marginal alternative energy resources projects such as Ocotillo Wind? Does this suggest that previously disturbed lands such as sand and gravel operations throughout the desert should now b e considered for industrial solar or wind energy development? *(Add more/reword?)*

Sec. 3.0 - Agricultural Resources

- 3.2 <u>Terminology</u> Urban and built-up land. Please note that in many places of the County, there is built up land where the minimum lot size exceed 1.5 Ac/building density. This is particularly true in the Ocotillo Nomirage Community area where groundwater constraints have resulted in many parcels where minimum lot size is 2 AC, 5 AC, 10 AC or 40 AC/DU.
- 3.5.2 <u>Constraints due to existing conditions</u> There are concerns about how converting hundreds and thousands of acres of currently productive farmland with intact irrigation and drainage systems will affect or impact nearby farming operations. Will there be adverse impacts to other agricultural operations in addition to the loss of agricultural jobs and increasing amounts of PM 10 and PM 2.5 as dust and sand are blown from sites cleared of vegetation for PV facilities such as is readily visible to anyone driving along State Hwy 98 or the paved and unpaved roads that access fields/former agricultural fields in the vicinity of PV projects? What are the concerns of farmers and of Farm Bureau, especially in light of the solar projects under development which will cover 22,559 acres according to ICBEIR Table 2-1 (at 28 of 423) ?
- 3.6 Opportunities Williamson Act lands under conservation agreements in IC totaled 138,333 AC (ICBEIR p. 40 of 423). In 10/2011 Gov. signed SB 618 allowing those with Williamson Act contracts under special conditions "to mutually agree to rescind the contract in order to simultaneously enter into a solar-use easement. Typically, the easement requires that the land be used for solar photovoltaic facilities for a term no less than 20 years." (ICBEIR P. 40 of 423) This is a significant percentage (23.5%) of the 588,416 acres identified as "currently irrigated" in 2012 (ICBEIR p. 36 of 423).

The ICBEIR (at 36 of 423) states that "according to the ICPDS, a total of 21,933.65 acres of agriculture land is being converted to alternative energy production use." In other words, given the text of SB 680, in addition to the 21,933 acres already being converted to alternative energy production, it sounds as if another 138,333 acres currently under conservation contracts or a total of 160,266 acres of agricultural lands or 27.2% of the agricultural lands of the county could be converted or sacrificed for solar photovoltaic facilities for no less than 20 years. If this calculation is considered incorrect, please provide the acreage of lands already approved for conversion to solar that were covered by the Williamson Act prior to Imperial County approval for conversion.

I may not be a farmer, however, I understand from farmers that if the canals and drainage systems are not used or maintained for a period of 20 years or more its is unlikely that it would ever be financially or physically feasible to return the lands to agricultural productivity, especially after the land did not receive water deliveries for a 20 plus year period and water were diverted to

urban use outside of Imperial County.

Thus, at a time when agricultural lands with access to Colorado River water are becoming increasingly important in light of drought and water delivery reductions elsewhere in CA, it seems most imprudent and economically ill-advised to consider approving conversion or loss of even more productive agricultural lands in Imperial County to solar photovoltaic use for a minimum or 20 years, most likely permanent loss! I have been told by one farmer that agricultural lands in Imperial county are now selling for up to \$10,000/acre as farmers further north facing water insecurity are seeking to relocate operations to Imperial County.

In times of scientists predicting a prolonged period of severe drought, it seems highly unlikely that abandoned farmlands could ever hope to obtain enough water to resume farming after the water has been used elsewhere, especially if that water is then transferred for use in urban areas elsewhere.

How would conflicts be resolved if land owners choose to rescind the conservation contract in favor of the solar-use easement? The list of those approving does not include any local/county body with approving authority, only CA Dept of Consv and Dept Food & Agric, no mention of County Planning Commission or Board of Supervisors and no mention of CEQA review requirements. Is there something missing in the ICBEIR?

Per SB 618 Chap. 6.9 "Solar-Use Easement" is defined as 51190©

"means any right or interest acquired by a county, or city in perpetuity, for a term of years, or annually self-renewing as provided in Section 51191.2, in a parcel or parcels determined by the Department of Conservation pursuant to Section 51191 to be eligible, where the deed or other instrument granting the right or interest imposes restrictions that, through limitation of future use, will effectively restrict the use of the land to photovoltaic solar facilities for the purpose of providing for the collection and distribution of solar energy for the generation of electricity, and any other incidental or subordinate agricultural, open-space uses, or other alternative renewable energy facilities. A solar-use easement shall not permit any land located in the easement to be used for any other use allowed in commercial, industrial, or residential zones." (<u>sb_618_bill-</u>20111008_chaptered.pdf) (Exhibit 26)

Per Sec. 51191 it is the CA Dept. of Conservation (DOC) that makes the determination of eligibility for recision of the conservation contract based on information required to be forwarded by the County to the DOC related to agricultural productivity. Given the recent conversion of what appeared to be productive farmlands in the SW portion of the irrigated area of Imperial County, it would seem that little consideration is being given to the criteria set forth in SB 618 Sec. 51191 to determine criteria for determining reduction of or suitability for future "agricultural productivity" and therefore suitability for "solar-use easement". (sb_618_bill-20111008_chaptered.pdf)

Solar use easement approval shall require a "dedication to the public of the use of lands for solar photovoltaic use. Any term easement and covenant shall run for a term of not less than 20 years unless a shorter term is requested by the landowner, in which case the term may be not less than 10 years." (51191.2) There is a requirement for "the restoration of the land that is subject to the easement to the conditions that existed before the approval or acceptance of the easement by the time the easement terminates." (51191.3(4)©) Although 51191.4 requires county approval of Sec. 51190 provisions as a whole, it does not state that there must be County approval for any specific parcel recision from Williamson Act for purposes of Solar-Use Easements.

Of further interest is 51191.5 © which states that "Nothing in this chapter shall limit the power of the state or any county, city, school district, or any other local public district, agency, or entity, or

any other person authorized by law, to acquire land subject to a solar-use easement by <u>eminent</u> <u>domain</u>." (Emphasis added.)

The real question is what about the fiscal impacts of conversion of large acreage of farmlands to solar use when the fiscal benefits to the landowner rather than to the County will now be extended for another 10 years rather than expire in 2017? And what if the State approved conversion of more Williamson Act contracts to solar use is more than what the County might think prudent? What are the implications for the agricultural economy, for agricultural employment, funding for schools and other government services as revenues from real estate taxes for converted farm lands decline and expenses will presumably be absorbed by other tax payers? Loss of employment will also likely have adverse impacts on the ability of individuals and families to afford appropriate medical and dental care, thus becoming an environmental justice issue.

How do issues related to Williamson Act conversions for solar use compare with the concerns related to IC BEIR Sec. 12.5.2 Constraints related to existing conditions concerning to take actions "including preservation of farm operations..." and concerns that "Prime Farmland and Farmland of Statewide importance should be avoided as much as possible." even as relates to development of renewable energy. (IC BEIR 143 of 423)

Sec. 4.0 Air Quality (starting at ICBEIR 41 of 423)

4.3.5 **Regional and Local Regulations**

4.5.1 <u>Constraints due to regulatory requirements.</u> There are serious concerns now about the adequacy of the PM 10 SIP in terms of industrial scale renewable energy and efforts or mostly failure thereof to reduce fugitive dust from those industrial scale renewable energy projects already in existence, i.e. Ocotillo Wind which surrounds Ocotillo and Nomirage and PV projects in the SW portion of agricultural lands. The beginning of formation of sand dunes across roads because of increasing dust and sand blowing or migrating from the renewable energy sites suggests serious failure of implementation of mitigation measures whatever they may or may not be. Fortunately, there will soon be a series of air quality monitoring stations at locations that will be selected to monitor air quality at locations deemed by an independent group. Air quality issues may look different in the future.

Residents of Ocotillo area have been complaining to APCD and posting photos and videos of dust and sand storms ever since the construction of the industrial wind project created new roads and dozed hundreds of acres. Thus, many conclude that the PM10 SIP levels are not being enforced for new stationary projects (industrial scale wind turbines) constructed in recent years on previously undisturbed desert lands managed by BLM to protect biological and cultural resources.

4.5.2 Constraints due to existing conditions Reality may be contrary to the statement that: "The high temperatures combined with low humidity produce hot, dry summers that contribute to the buildup of ozone. These conditions are attractive for wind and solar renewable energy development" even though not constrained directly by ozone. (ICBEIR 51 of 423) In fact, County's consultant Brian Mooney has been explaining at public meetings that according to the NREL maps the area where wind turbines are located near Ocotillo, is not good for a wind energy project and that the only places in the county suitable for wind energy with high winds are located at high elevation in wilderness areas, places where wind projects cannot be permitted. Thus, any assertion that conditions are attractive for wind energy development are both false and misleading according to statements and maps provided by Consultant Mooney! (Exhibit 1 video of June 19, 2014 community meeting in Ocotillo that was made by Jim Pelley.) True, wind energy development would not be constrained by ozone, but it is constrained by wilderness designation of high elevation places with better winds and by the facts as mapped by the NREL!

And please note the following constraints related to air quality associated with renewable energy:

IC BEIR states that: "<u>Additional emissions generated from development of renewable energy</u> projects within the air basin, particularly during construction, have the potential to contribute to conditions that already exceed air quality standards." (ICBEIR 51 of 423) This is just what residents from Ocotillo area have complained of, and what has been observed at PV sites also. In other words, ICBEIR confirms that additional renewable energy projects in Imperial County are likely to contribute to worsening air quality. But what evidence is there or has there been that the local APCD is serious about reducing particulates and dust during or after construction? Ask residents of Ocotillo. There is, however, that CDPH and/or Cal OSHA may be able to take action based on photo, video and email documentation of complaints from the impacted community. See also <u>http://www.cdph.ca.gov/programs/hesis/documents/coccifact.pdf</u> (Exhibit 22) and earlier concerns about exposures to the fungus that causes valley fever.

4.6 Opportunities This section correctly notes, but apparently ignores the need to consider that: "Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes." (ICBEIR 51 of 423) This begs the question of why there was apparently no consideration of the concerns of the residents of Ocotillo before or after approval of the wind project with its associated worsening dust and sand storms and apparent failures for soil stabilization efforts where desert crusts were disturbed. Many residents of that community moved there because of health concerns and needed to get away from both urban areas and agricultural areas.

ICBEIR at 51 of 423 continues by stating that: "Coordination with the ICAPCD on policies that address emissions from these could continue to improve air quality in the County." So now ask residents of Ocotillo how well they believe that the ICAPCD has followed up and acted on the complaints from residents about the blowing dust and sand coming from disturbed lands associated with the Ocotillo wind project!

Text at ICBEIR 51 of 423 also raises concerns related to the siting of solar projects essentially surrounding elementary schools in SW Imperial County. Have there been complaints and health related concerns from students, families and teachers and school staff related to proximity of solar projects to school grounds? Were schools under "gag orders if they received gifts or donations of money or supplies from project applicants?

Sec. 5.0 - Biological Resources. Begin at ICBEIR at 52 of 423

- **5.3.1** Text should be corrected to state that the BLM California Desert Conservation Area (CDCA) Plan was first approved in 1980 and amended in 1999. (ICBEIR at 52 of 423)
- 5.4 Existing Conditions (ICBEIR at 53 of 423) must be corrected to add the Jacumba Mountains, Coyote Mountains and Fish Creek Mountains in the western part of the County, because all three mountain ranges have been designated as Wilderness Areas by BLM as of 1980 in the CDCA Plan. According to the AAA map for Imperial County, it appears that the Santa Rosa Mountains are in San Diego and Riverside Counties, not Imperial County. Cargo Muchacho Mountains and Palo Verde Mountains to the east are also in Imperial County, but the Orocopia Mountains to the north are in Riverside County, not Imperial County.

We must admit that we never have thought of the Salton Sea as being in the "northeast corner of the County" as stated at ICBEIR 53 of 423). Indeed, the AAA map for Imperial County does NOT depict the Salton Sea as being in the northeast corner of the County, nor does Figure 1-1 "Location and vicinity map" (at ICBEIR 21 of 423). From what sources was the text of the ICBEIR cut and pasted and why didn't anyone look at where Figure 1-1 depicts the location of the Salton Sea? Did any County staff or Chambers' consultant read the text and compare text with map? Fig. 1-1 says that the map was saved 2/11/2014, but what good is it to have map and text

that do not match? Is this really the best effort and Final IC BEIR as stated by Brian Mooney at the Ocotillo Community meeting on June 19, 2014?

With such a failure to correctly identify some of the major geologic/geographic features of the County, what credibility can be accorded to any following discussions of biological resources?

By contrast, take a look at IC BEIR (at 60 of 423) Fig. 5-4 Sensitive and Designated Habitat to find the locations of mountain ranges and the Salton Sea in Imperial County. This map certainly does not match the text at IC BEIR 52 of 423. Again we ask was there any effort made to proof read the IC BEIR before public distribution, if so, by whom, and what knowledge did that person or persons have of Imperial County geography? Please identify the names and expertise of all who proof read and are responsible for the text and figures in the Chambers IC BEIR document.

What is important is what is the acreage of Salton Sea in Imperial County now, and what is it projected to be in the future in light of declining inflows from both declining rainfall runoff and declining waste water from agricultural lands? Are variations in the acreage of Salton Sea related to flood events that show rapid increase in water levels and slower evaporation rates? How have farm to city water transfers impacted the levels and the water quality/salinity of the Salton Sea? How did flood run-off from hurricanes Kathleen and Doreen in 1976 and 1977 affect the Salton Sea and were those effects short or long term?

In addition, the description of existing conditions for biological resources is <u>inconsistent</u> with the test describing the Mountains in the visual resources section at IC BEIR 25-26 of 423. Why?

It si strongly suggested that the preparers of the ICBEIR get a copy of the <u>AAA map for San</u> <u>Diego Region</u> which includes Imperial County or look at a <u>Rand McNally Road Atlas</u> for Southern CA. These maps correctly identify mountain ranges in Imperial County. It is surprising that the Chambers Group with a local former El Centro planner, Oliver Alvorado, would be unable to prepare a correct description of the mountain ranges and correct location for Salton Sea in Imperial County for the description of Existing Conditions. If the preparers of the IC BEIR (at 53 of 423) cannot correctly define the geographic features of Imperial County, what credibility should one accord to anything else in the IC BEIR?

Suggesting that the average annual rainfall is 2.92 inches (IC BEIR 53 of 423) is misleading or meaningless when one considers that there are mountains that exceed 4,000 ft elevation in the west and that there is also a pronounced rain shadow effect so rainfall can be highly variable even a few miles apart such as exists in the Ocotillo area, where there can be heavy runoff and flowing water if there are heavy rains in the Jacumba Mountains that can cause flash flooding in the residential communities that were inappropriately sited in washes and flood plains at the base of mountain canyons. In 1976 a wall of water from the hurricane destroyed not only the west bound lanes of I-8 and the railroad, but removed houses and vegetation from the center of the community of Ocotillo. These lands should still be designated as a FEMA floodway.

In Harmon's experience, it is not uncommon for there to be heavy rains in one area near the mountains and no rainfall several miles away. Such rain events have a significant impact in areas of desert washes with ironwood trees along wash banks and desert sinks which could have standing water sometimes lasting a week or more and supporting an incredible diversity of plant life after rains. And nearby, creosote bushes could appear dry with brown rather than green leaves. No matter what the rainfall patterns and presence of occasional standing water following heavy rainfall events in areas overlying the Ocotillo-Coyote Wells Groundwater Basin, there has been no increase in levels of potable groundwater from such events in the more than 40 years of monitoring data for water level and water quality as measured by the USGS Water Resources Division and available at the USGS website.

5.4.1 Plants and Vegetative Communities

"The DRECP Land Cover/ Natural Communities map is a detailed map of land cover and vegetation types and includes most of Imperial County (DREP 2012)." (IC BEIR 53 of 423) ... The reader is then directed to "Documents that detail the DRECP Land Covers and Natural Communities are included as Appendices A and B." However, this is very misleading. I was unable to discover any detailed land cover/natural communities map in either Appendix A or B. Where in the IC BEIR (page numbers please) can one locate the referenced map?

Appendix A Fig 1. Study areas for DRECP vegetation mapping (IC BEIR 242 of 423) does not depict any land within Imperial County and raises questions about why it is included in the IC BEIR. Appendix A Figure 1 appears to be absolutely irrelevant. For what County was this Appendix A and Figure 1 document prepared? Most certainly not for Imperial County. So it is shocking that Brian Mooney told the public at the Ocotillo Community meeting that the IC BEIR is the Final Baseline Environmental Inventory Report!!! A copy of the video of the Ocotillo Community meeting made by Jim Pelley will be provided as Exhibit 1 for the NOP and to be considered also as an exhibit for the EIR whenever it is available for public review.

The first time in the Appendix that the term "Imperial County" appears is in Appendix F at p. 371 of 423 where Dudek in a March 2012 DRECP Baseline Biology Report document describes agricultural cover. It is not until Dudek's Figure 4-1 Land Cover at ICBEIR (394 of 423) that one first sees anything related to land cover in Imperial County! Even magnifying the Figure to 400%, there is so little differentiation between colors in the Legend that the Land Cover map is essentially useless for anything considered as Baseline Inventory. Then Imperial County is seen again at 378, 384, 397, 401,406, 409. Why only at the end of the document?

Table 5-1 Acreages of Land cover types and vegetation communities within Imperial County (IC BEIR 54, 55 of 423) is an interesting list, but is essentially useless without any Figure to indicate where such land cover or vegetative communities can be found. As noted Dudek's Figure 4-1 (IC BEIR 394 of 423) is of no help because there is very little color differentiation that can be related to the legend no matter how much the Figure is magnified. To be of any value, Table 5-1 must be related to a map of such cover and communities in Imperial County within the document IC BEIR on the page either preceding or following Table 5-1. So, please put a Figure at as close as possible to the relevant table and text!

5.4.2 Wildlife (IC BEIR 55 of 423)

This review of wildlife issues will leave the detailed analysis to wildlife biologists and organizations like the Center for biological Diversity (CBD). However, this response will point our errors and inconsistencies which require corrections for anything that could truly be considered a Baseline Environmental Inventory Report.

By contrast to the text of IC BEIR citing Brian Mooney (IC BEIR 55 of 423) for species county wide, please check out the following information from the Sonny Bono Salton Sea National Wildlife Refuge which states that: "Habitat diversity on Refuge lands provides for the needs of resident wildlife species as well as numerous seasonal residents and migrants of the Pacific Flyway. Over 400 bird species have been recorded at the Refuge and at least 93 species have nested on the Refuge. In addition, 41 species of mammals, 18 species of reptiles, 4 species of amphibians and 15 species of fish have been identified in the area." Specifically the Wildlife Refuge 2009 Wildlife list says that "421 species of birds have been recorded at or near the Salton Sea National <u>Wildlife Refuge.</u>"

(<u>http://www.fws.gov/refuge/Sonny_Bono_Salton_Sea/wildlife_and_habitat/index.html</u>) But when one includes the Algodones dunes, and mountain habitats at high elevation, one must conclude that the estimates by Mooney in 1993 are far lower than what is known now, more than 20 years after the Mooney 1993 list. Thus, the IC BEIR must be updated and corrected to reflect wildlife for the Baseline Environ Inventory Report in 2014.! I just reviewed the 2009 Sonny Bono Salton Sea National Wildlife Refuge Wildlife list and it did not include any species of deer, bighorn sheep, bobcat or mountain lion which are known to be in the mountains of Imperial County. Therefore, the relying on a 1993 inventory by Brian Mooney which identifies ever fewer species than are found at the Salton Sea wildlife refuge is inadequate.

In the past twenty years there have been many biological surveys for various projects on both public and private lands in Imperial County. During the biological resources inventories for the Imperial Valley Solar Two project proposed for public lands between old Hwy 80 and Interstate 8, there were photos taken by a project biologist of pregnant Peninsular Bighorn Sheep ewes. The sheep were documented as being many miles east of their expected range and photographs were included in the Administrative record for hearings before the CEC. This example is cited to indicate that what even FWS and biologists might have assumed about wildlife and occupied or used ranges during different rainfall or drought years can bring surprises. This kind of information should not be ignored when preparing the revisions to the IC BEIR. Reliance on only 1993 biological resources documents will be inadequate and outdated.

"With over 90 percent of California's original wetlands gone, the Salton Sea has become one of the most important nesting sites and stopovers along the Pacific Flyway. In some years, as many as 95 percent of the North American population of eared grebes may use the Sea, 90 percent of American white pelicans, 50 percent of ruddy ducks and 40 percent of Yuma clapper rails. All of these species are of concern at either regional, continental or global scales. With its marine, freshwater, desert, wetland and agricultural habitats, the Sonny Bono Salton Sea National Wildlife Refuge provides habitat for hundreds of birds and wetland species, including several that have been listed as endangered or sensitive by the <u>U.S. Fish and Wildlife Service</u>." (http://www.fws.gov/refuge/Sonny_Bono_Salton_Sea/wildlife_and_habitat/index.html)

For additional concerns about utility-scale solar in the desert see Exhibit 41. Lovich & Ennen 2011 Wildlife conservation and solar energy development in the desert southwest, United States. <u>Bioscience</u>. V. 61, No 12. Pp. 982-992.

5.4.3 Sensitive Habitats

Why doesn't Table 5-2 include "Wetlands" sensitive habitats within Imperial County when the Sony Bono Salton Sea Refuge is so important and has so much detail available at its internet website? Table 5-2 (IC BEIR 56 of 423) must have a map or Figure associated with it to have any value. So where are the sensitive habitats located and why are there so few identified compared to the 1993 imperial County General Plan in the multiple Figures for Figure 2 and 3 of the Conservation and Open Space Element? See also the Imperial Wildlife Area (Wister Area) Imperial Wildlife Area (Hazard Unit) and Imperial Wildlife Area (Finney/Ramer Unit), San Sebastian Marsh-San Felipe Creek ACEC, Cibola NWR and Imperial NWR that were all identified in Figure 3 of the 1993 General Plan Conservation and Open Space Element. Also one might think that sensitive habitat areas should include designated Critical Habitat for the listed ESA Peninsular BigHorn Sheep and areas for Flat Tailed Horned Lizard management Strategy. See also listing under ICBEIR Section 5.4.5 for Agency designated habitats.

5.4.4 Sensitive Species

Figure 4-1 is found at ICBEIR at 394 of 423, however the ICBEIR contains <u>no Figure 4-2</u> as stated in Sec. 5.4.4 at ICBEIR 56 of 423. The missing Figure 4-2 must be made available for public review! There is no Figure 4-2 included in the IC BEIR List of Figures at ICBEIR (12 of 423).

5.4.5 Agency Designated Habitats It is impossible to believe that: "Data was unavailable for these areas.." (IC BEIR 56 of 423). Surely every agency that has a designated habitat area knows both where it is and how large it is. Why didn't Chambers or Mooney ask? This makes no sense in light of the details of Table 5-3 at ICBEIR 61, 62 of 423.

Figures 5-1 and 5-2 (IC BEIR 57, 58 of 423) are confusing and raise questions for EH after living in on an inholding surrounded by the Yuha Desert ACEC and Jacumba Mts Wilderness since 1977. The locations of circles and squared areas related to specific species of plants and animals is curious, especially for the Yuha Desert, the area with which I am most familiar. There should be more information and explanation about significance of circles and squares for the information to be useful, or credible for those with local knowledge. Is it that other areas have not been surveyed? What are the species that are identified as sensitive for each area? The figures fail to provide specific details.

Based on Table 5-3 it appears that information was provided. For Table 5-3, if "Lake" is meant to be the highly saline Salton Sea, of 198,269.27 acres, (ICBEIR 61 of 423), this figure is not the same as cited elsewhere for Salton Sea. IC BEIR (26 of 423) identified the Salton Sea as being "approximately 245,000 acres. Big difference, but which is correct in 2014? More internal inconsistencies related to numerical data.

Why does "Table 5-3: Acres of Agency Designated Sensitive Habitats within Imperial County" have different acreages for the Sonny Bono Salton Sea National Wildlife Refuge as 31,787.30 ac (IC BEIR 61 of 423) according to USFWS and on the next page as 37,400.33 ac (IC BEIR 62 of 423) according to USGS when both USFWS and USGS are sister agencies in the Department of Interior? Same federal land designation, but more than 5,600 acres (or more than 8.77 square miles difference in size! Imperial National Wildlife Refuge is 10,332.74 Ac according to the USFWS, but 13,884.46 acres according to USGS.

Similarly, the acreages for designated wilderness areas in the BLM NLCS portion of Table 5-3 is different from the acreages for the same BLM wilderness areas(IC BEIR p 61 of 423) in the USGS Wilderness and wildlife portion of table 5-3 (IC BEIR 62 of 423). Again, BLM and USGS are also sister agencies within the Dept. Of Interior. No explanation for the different acreages is provided. What credibility should the public or any agency decision makers place in such inconsistent information for which there is no explanation? See **Tables of inconsistent numeric information to be checked for IC BEIR 6-2014** at end of these comments. Either there must be some explanations for inconsistent numeric information or discrepancies must be corrected for the IC BEIR to be considered a credible document.

5.5 Constraints and Opportunities related to Biological Resources

5.52 Constraints due to existing conditions is incomplete and inaccurate/misleading. This section includes the following sentence: "These areas include sensitive habitats and agency designated or protected areas shown on Figures 4-3 and 4-4." (IC BEIR p. 63 of 423) However, I was unable to find and Figure identified as Figure 4-2, 4-3, or 4-4 in either the text of the IC BEIR or the appendices. No such figures are listed in the "List of Figures" at IC BEIR (p 12 of 423) Why direct the reader to Figures which are not included in the document, and not even included in the List of Figures at the beginning of the document? If the reference is incorrect, it should be corrected. In any event, this indicates inattention to detail or sloppy proofreading and editing.

6.0 Cultural/Archeological Resources

For more credibility and accuracy, it would be more appropriate to cite published original research sources for historical and archaeological/cultural information than Mooney 1993 for the Imperial County General Plan Update of 2014 after there have been so many EIR/EIS cultural resource inventories done during the past two decades! Yes, details must be confidential from the general public, but to ignore the past surveys appears to minimize the importance and extent of cultural resources and sites.

6.4.2 Existing Prehistoric, Ethnographic, and Historic Sites Ethnographic Sites text (at IC BEIR p 72 of 423) acknowledges <u>SACRED GEOGRAPHY</u>.

"Ethnographic studies in the area suggest the concept of sacred geography has always

been important to the desert cultures of this region. From the earliest times, native peoples have attributed special significance to geographic features, which play important roles in religious and cultural practices. Many of these features are remembered in songs passed down through oral tradition, serving as "maps" of mythological traditions, as well as economic sites such as quarry sites, etc. Examples of these types of sites include:

Ceremonial Site: A prehistoric or historic area of sacred character. Physical evidence of ceremonial activities are usually present in the form of dance patterns, vision quest circles, intaglios, rock cairns, etc.

Sacred Area: A prehistoric or historic area of sacred character. Evidence of physical activities is not always present. Certain mountaintops, power places, and vision quest locations are examples of sacred areas.

Traditional Use Area: An area of traditional use for hunting, gathering (of food or medicinal plants), fishing, or traveling." (IC BEIR p. 72 of 423)

How extraordinarily sad it is then to realize that the claims of sacred geography in the area that was destroyed by the Ocotillo wind project were ignored by both Imperial County and BLM. To the best of my knowledge many Native American groups including the Quechan, Viejas and Manzanita are still very upset by the intrusion of wind turbines onto lands with significant sacred importance to living tribal members today. See also article referring to the hearing of the Native American Heritage Commission Feb 12, 2013 http://www.eastcountymagazine.org/ca-native-american-heritage-commission-issues-report-backing-viejas-and-quechan-claims-ocotoillo-wind (Exhibit 27) and in April 26, 2013 (Exhibit 24) http://www.eastcountymagazine.org/native-american-heritage-commission-issues-report-backing-viejas-and-quechan-claims-ocotoillo-wind">http://www.eastcountymagazine.org/native-american-heritage-commission-issues-report-backing-viejas-and-quechan-claims-ocotoillo-wind (Exhibit 27) and in April 26, 2013 (Exhibit 24) http://www.eastcountymagazine.org/native-american-heritage-commission-declares-ocotillo-wind-sacred-site-asks-attorney-general-weigh-legal http://www.eastcountymagazine.org/print/13103.

The hearing before the Native American Heritage commission was heartbreaking, but also inspiring in the sincerity of concerns and beliefs, making the damage to lands approved by BLM and the County all the more troubling in light of the ongoing litigation and extraordinarily low capacity factor observed for the wind energy project. See: April 30, 2014 East County magazine article (Exhibit 25) <u>http://www.eastcountymagazine.org/print/15554</u> Or <u>http://www.eastcountymagazine.org/was-it-fraud-experts-raise-serious-questions-after-low-first-ye ar-energy-production-ocotillo-wind-project</u>.

6.5.2 Constraints due to existing conditions is outdated

In the Cultural resources text, it is inappropriate to cite the twenty one (21) year old outdated Mooney 1993 information for the number of prehistoric and historic archeological sites (IC BEIR p. 78 of 423) given all the recent cultural resource surveys done for site specific projects during the past more than twenty years. Because much of the site specific information has been discussed in the numerous Draft and Final EIS/EIR documents, this information should be updated to reflect what has been documented. That cultural resource information is outdated is reflected in statements of Sec. 6.6.1 Opportunities related to cultural resources (IC BEIR 78 of 423). Discussions about cultural resources must be updates and reference research made available for decision-makers during the past two decades at least.

7.0 Geology and Soils

7.4 Existing conditions

Reference stating that "the County of Yuma, Arizona, within the State of California lies to the east" (ICBEIR 82 of 423) once again reveals geographic error and must be corrected. So too does calling the San Felipe Hills and Superstition in the west of the county, but failing to mention the Jacumba mountains, Coyote Mountains and Fish Creek Mountains, all three of which have major portions designated as Wilderness by BLM.. Please review a AAA map for Imperial County and

correct errors and internal inconsistencies as noted below.

The discussion of geology and soils is as erroneous as for other sections and fails to disclose that there are several mountain ranges in western Imperial County (ICBEIR 82 of 423), Jacumba Mountains, Coyote Mountains, and the Fish Creek Mountains. See earlier discussions elsewhere in these comments and also IC BEIR Figure 5.4 (at p. 60 of 423) which identifies mountain ranges, many of which have been designated as wilderness areas by BLM. The internal inconsistencies in discussions of existing conditions raises serious concerns about the accuracy of any/all information in the IC BEIR!

- **7.4.2 Geology** Why the discussion about the Chuckwalla and Orocopia Mountains (IC BEIR 85 of 423) which are located in Riverside County and not in Imperial County according to AAA maps?
- **7.4.3** Geologic activity In spite of the superficial discussion by the IC BEIR, there has been substantial damage to infrastructure in Imperial County that has resulted form <u>earthquakes</u> ever since 1977 when I moved to Ocotillo area. There was major damage to the County Administrative building, requiring its demolition in 1979, and there has also been major damage to roads, irrigation systems, water systems and housing, including since the 2010 earthquakes, with epicenters in Mexico and near Ocotillo. See Perry 2010–4-12 "Buildings, nerves under stress in border region a week after quake: As California and Mexican officials work to assess harm to infrastructure, a series of 'robust' aftershocks have added to emotional turmoil in area hardest hit by the 7.2 earthquake" Los Angeles Times.

http://articles.latimes.com/2010/apr/12/local/la-me-quake-damage12-2010apr12 (Exhibit 28) See also: Perry & Wilkinson 2010-04-05 "Quake rolls across Baja: The magnitude 7.2 temblor topples buildings and is blames for at least two deaths. Damage is worst in the border cities of Calexico and Mexicali." Los Angeles Times (Exhibit 29)

http://articles.latimes.com/2010/apr/04/world/la-fg-quake5-2010apr05 And SDG&E's Imperial Valley Substation was damaged in the Easter 2010 earthquake. (Exhibit 32) http://tdworld.com/substations/sdge-prepares-future-seismic-events

Robbins 2011-04-04 "Big Mexican quake changed thinking about faults." <u>San Diego Union</u> Tribune (Exhibit 30)

http://www.utsandiego.com/news/2011/apr/04/large-mexican-earthquake-eye-opener-scientists/?p ri

Beccera 2010-06-24 "Easter Sunday earthquake shifted Earth's crust nearly 3 feet near Calexico: The Mexicali-area quake moved the crust south of the border up to 10 feet, radar images and data from NASA show." Los Angeles Times (Exhibit 31)

http://articles.latimes.com/2010/jun/24/local/la-me-624-mexicali-earthquake-20100624

The above articles are just a small sampling of articles on earthquake damage and recent information related to Imperial County, so one wonders what might happen to already built industrial solar projects if and when the next significant earthquake happens or what will happen to the wind turbines in the Ocotillo area, especially the one that is sited on a mapped trace of the Elsinore Fault. Are renewable energy projects and/or transmission lines proposals being sited and constructed taking into account the recent and potential seismic activity of the area?

9.4.1 Earthquakes in IC BEIR (at 101, 102 of 423) does not suggest the magnitude of concern that should be evidenced by past earthquake damages in Imperial County.

8.0 Greenhouse Gas Emissions/Climate change

8.3.3 Regional and Local regulations Goal 6 re maximum conservation practices: Objective 6.2 under conservation of energy sources which states a goal of "maximum development of renewable alternative sources of energy" (ICBEIR p. 94 0f 423) sounds as if it would lead to the increase of emissions and GHG in Imperial County if all the transportation and construction activities

associated with construction at the Ocotillo wind project site and industrial scale photovoltaic project sites are combined and compared with the GHG emissions that were associated with the activities on the lands where those projects were constructed, prior to construction. In addition, one of the most significant GHG pollutants Sulfer Hexaflouride SF6 that is used in electrical equipment which will be drastically increased with more and more projects:

http://fluoridealert.org/news/sf6-california-arb-approves-measure-to-limit-most-powerfulgreenhouse-gas/ http://www.sciencedaily.com/articles/s/sulfur_hexafluoride.htm

<u>http://en.wikipedia.org/wiki/Sulfur_hexafluoride</u> Sulfur hexafluoride (SF6)emissions are from high-voltage electrical applications and 23,900 times as potent as CO@ in trapping heat.

Objective 6.3 to "<u>maximize energy conservation and efficiency</u>" (IC BEIR 94 of 423). I am unaware of any serious efforts to maximize energy conservation and efficiency in Imperial County which has many thousands of residential mobile homes with poor insulation and which sit as ice boxes on winter nights and little ovens in full sun during the hottest days of the summer. Upgrading housing and even eliminating temporary structures for school classrooms and government buildings and requiring efforts at planting native vegetation tree species whit root systems that would reach the high water tables could go a long way to reducing energy requirements for heating and cooling of such structures. Under this heading one might also consider the contribution to energy conservation that would be associated with a serious effort to discourage the use of off-road vehicle activity and GHG emissions from such recreational activity during the cooler and winter months in Imperial County. Until the County considers the GHG contributions from unnecessary recreational activity and ORV races in the county, one cannot consider these goals and objectives as realistic or serious.

Policy : "The County shall establish programs and procedures to encourage the conservation of energy by the general public." (IC BEIR 94 of 423) See earlier comments on need to discourage recreational excessive consumption of fuels for ORV recreational activities on public lands and ORV racing activities.

There should be efforts, including possibly public financing, to help residents learn what can be done to improve energy efficiency of residential and educational and office structures, and to encourage approvals for homeowners who wish to install rooftop PV systems on their homes. Alternatively, funds might be made available to assist displaced workers in the agricultural economy from conversion of farm lands to industrial solar to relocate to other parts of California where energy usage to make homes comfortable would be less than in Imperial County with its high ambient temperatures in the summer months.

Admittedly any and all PV systems, whether residential, commercial or industrial will be far less efficient in a place like Imperial County in the summer because all need to dump heat. The hotter the ambient air temperature, the less efficient the photovoltaic energy production. That said, PV systems should be installed in urban areas closer to point of use and where the ambient temperatures are far lower such as in coastal areas such as Los Angeles and San Diego which are the areas to which energy is anticipated to be exported. (I have completed two courses in photovoltaic design and installation, one at Colorado Mountain College and the second at ARCO Solar, and the basics on photovoltaic system efficiencies have not changed.)

There need to be many specific details related to the various text items listed under the heading "Conservation of Energy Sources" at IC BEIR (94 of 423)

8.4 Existing conditions What is the contribution to GHG from the transportation and operation of the Mesquite Regional Landfill, a trash-by-rail landfill for Los Angeles that is located near the Glamis mine? Do these GHG emissions get counted against Imperial County or Los Angeles County?

8.4.1 Trends of Climate Change What will be the projected per capita increases in energy consumption for older mobile homes in Imperial County as ambient temperatures in the desert increase? Should efforts be made to reduce per capita energy consumption in residences in Imperial County before worrying about generating renewable energy electricity to be exported to more affluent coastal areas where summer ambient temperatures should require less energy inputs for health and safety? Another Environmental Justice issue and energy conservation issue.

8.4.3 Greenhouse Gas Emission Sources

Figure 8.1 (IC BEIR 96 of 423) purporting to locate sources of GHG in Imperial County is woefully inadequate and INCORRECT !!!!! The US Gypsum Plant at Plaster City is to the WEST of irrigated agriculture on old Hwy 80 and about 8 miles east of Ocotillo, not in the desert located at the junction of Hwy 98 and Interstate 8 to the east of irrigated agriculture in the East Mesa as depicted in Fig. 8-1 at ICBEIR 96 of 423. Why is the city of El Centro identified as the only urban area producing GHG? Why aren't the urban areas of Calexico, Holtville, Heber, Imperial, Brawley, Calipatria, the Imperial County Airport, geothermal, other non-hydroelectric generating facilities or waste burning operations, feedlots with livestock waste, or any of the sewage treatment facilities or the Mesquite Regional Landfill identified? What about the Naval Air Facility and the two State prisons, what about OHV activity in the Algodones Dunes and Plaster City Open Area, ORV races? It seems more likely that the Chambers corporation has made errors of location and omission than has CARB. Many of these potential sources are identified in text at IC BEIR 97 of 423 and in Figure 8-2 at IC BEIR 98 of 423. To these should be added the transportation and construction emissions associated with industrial scale renewable energy projects such as Ocotillo Wind and numerous photovoltaic projects where agricultural lands are being converted form agriculture to industrial scorched earth uses unable to uptake CO2 through photosynthesis by plants..

8.5.2 Constraints Due to Existing Conditions

Thank you for admitting that GHG emissions are likely to increase in rural areas of Imperial County where there is little or no development now. This is what commenters on projects have been repeatedly been telling County and BLM decision-makers. Specifically IC BEIR noted that:

"Since climate change is a cumulative impact, local conditions do not typically constrain development of individual renewable energy facilities, such as wind or solar sources; however, since renewable energy facilities can require large amounts of land, projects might be built in more remote areas. Remote locations would require additional miles traveled by light-duty and heavy-duty vehicles, resulting in increased GHG emissions. The level of GHG emissions generated by the project could constrain the amount or type of development or require mitigation to offset GHG emissions. (IC BEIR at 98, 99 of 423)

"Construction and operation of the renewable energy facilities would result in the generation of GHG emissions;" (IC BEIR at 98, 99 of 423)

8.6 **Opportunities**

So, yes, due to existing conditions the expansion of renewable energy projects in locations where proposed in Imperial County, this would appear to be consistent with the goal to designate Imperial County as a California State Sacrifice Area (CSA) and National Sacrifice Area (NSA) so that the state of CA can achieve its renewable energy goal for the high population, more affluent urban areas by 2020 regardless of the adverse impacts on lower income rural counties and communities. If one is to site the projects to reduce transportation emissions and transmission construction costs then the renewable energy projects should be located in or as close to the urban areas where the energy is to be used, not in some remote area such as Imperial County where emissions, uses of raw materials, transportation, and inefficiencies will be maximized. Indeed:

"Imperial County could also develop a Climate Action Plan to provide policy direction and identify actions that can reduce GHG emissions. For the development of renewable energy projects, siting to reduce vehicle miles traveled (VMT) and minimize distances of transmission line construction should be prioritized to reduce the potential for GHG emissions associated with their development." (ICBEIR 99 of 423)

If taken seriously, with the intent to reduce GHG emissions to the maximum extent possible and minimizing transmission distances, the County might well determine that the best way to achieve that goal would be to chose to deny development of industrial scale solar and wind projects in Imperial County, thus eliminating the need for construction of many new transmission lines, substations and earth disturbing activities in favor of improving quality of life for County residents and pushing development of renewable energy projects to the built environment in the more densely populated coastal areas identified as end-use sites. Is it the decision of Imperial County or the CEC and more affluent coastal urban areas with their investor owned utilities?

Given the pressures identified in state and federal policies, how would any efforts of Imperial County "For the development of renewable energy projects, siting to reduce vehicle miles traveled (VMT) and minimize distances of transmission line construction should be prioritized to reduce the potential for GHG emissions associated with their development." (IC BEIR at 99 of 423) ever prevail or be effective?

9.0 Hazards and Hazardous Materials

Where in the world did the text for the IC BEIR defensible space come from? Never before have I seen concern in Imperial County about "defensible space" described in section on terminology. IC BEIR states concern for defensible space "where the vegetation is modified and maintained to slow the rate and intensity of an advancing wildland fire. It also provides room for firefighters to work and helps protect the forest from becoming involved should a structure fire occur." (IC BEIR 100 of 423, emphasis added) Where is the forest and where the concern for wildland fires in Imperial County where residences and structures seem to be located in desert regions and NOT forest? Are the preparers of the IC BEIR actually familiar with Imperial County, where it is located and where such communities and residences are likely to be found? In light of the text in Sec. 9.4.4 "Wildfires" (IC BEIR 102 of 423), there is no reason to include a definition for defensible space related to wildfires unless it is to discuss fuel and chemical storage facilities locations near populated areas.

Flooding is far more of a problem than wildlands fires.

Where are the dams and <u>levees</u> that are of concern for failure in Sec. 9.4.1 (at IC BEIR 101 of 423)? They should be depicted on a map and identified as such. Of greater concern would seem to be earthquake damage to the irrigation system and canals and potential for damage to major canals, such as the WestSide Main Canal which was breeched during the flooding from mountains in 1976.

- 9.4.1 Earthquakes See earlier comments, concerns, and exhibits.
- **9.4.2** Flood hazards there are ongoing concerns often voiced about the consequences of altering the floodway to the west and north of Ocotillo for roads and construction of the industrial scale wind project which surrounds the town on three sides. The consequences of ignoring the pre-existing drainage patterns can be observed by seeing the damage caused by flooding to the roads constructed through the wind project. Residents making videos of flooding problems after even minor rainfall events since the wind turbine project was constructed would likely believe that Executive Order 11988 related to Floodplain Management (ICBEIR at 116 of 423) and other floodway management responsibilities were inadequately considered seriously or ignored to approve the wind turbine project. CalTrans has had to do some serious roadway clean-up following flooding damage coming from the wind project area onto State Highway 98 and State

Highway 2. Damage done as drainage channels are damaged or changes have consequences for vegetation and animal life along the drainages. For the wind project, one cannot help but wonder Considering the consequences of constructing roads across drainages is in compliance with California Fish and Game Code Section 1602 as described at IC BEIR (118 of 423). Links to Pelley's videos of flood waters after construction can be provided. (Exhibit 35) ECM 2013 Video inside a flash flood at the Ocotillo wind facility

http://www.eastcountymagazine.org/wild-ride-video-inside-flash-flood-ocotillo-wind-facility

9.4.6 Naturally Occurring Biological Threats

ICBEIR (103 of 423) missed mention of one of the most important naturally occurring biological threats when it ignored mention of valley fever. The presence of *Coccidioides immitis* a fungus in the desert soils that causes valley fever is a public health concern for Imperial County, especially as related to ground disturbing activities associated with construction of industrial scale wind and solar projects. There has already been one dog in Ocotillo where the vet confirmed valley fever as the cause of death, and I know of other cases in valley residents. On July 17, 2014 there was a presentation by CDPH staff about valley fever at the Environmental Justice Task Force meeting on July 17th. The discussion will be about two outbreak investigations of Valley Fever at solar power-generating facilities in San Luis Obispo. Information about his talk can be found here: "Blowing in the Wind: Coccidioidomycosis Among Solar Power Farm Construction Workers California, 2011–2013" https://cste.confex.com/cste/2014/webprogram/Paper3428.html There were 43 people who got valley fever associated with construction at two solar power generating facilities in San Luis Obispo County. This is far more than the 28 workers reported as ill by the Los Angeles Times. (Exhibit 38 "28 workers sickened by valley fever in San Luis Obispo County" http://articles.latimes.com/2013/may/01/local/la-me-ln-valley-fever-solar-sites-20130501

I am aware from the Imperial County Public Health Dept that more than 33% of the Community Acquired Pneumonia (CAP) cases that present to the Emergency Rooms in Imperial County do not have a known cause. They are not bacterial or viral, but the were not tested to determine if the cause was fungal, or cocci and needed to be treated with an antifungal rather than an antibiotic. I have been given two reasons for failure to test for valley fever: (1) it is expensive, my test cost \$98 or less than the cost of a visit to the ER; and (2) "we don't talk about it in Imperial County because valley fever is bad for jobs". But that doesn't mean it isn't real or that those who are ill should be required to travel to San Diego or Arizona to get diagnosis and treatment.

There is ample documentation that the fungus that causes valley fever has been studied as a biological weapon, including by biologists at U.S. Army Biological Laboratories at Fort Detrick, MD as part of the bioweapons program. See Exhibit 3 for the Smith article from the US Army re Coccidioidomycosis and also an excellent article in the New Yorker.

http://www.newyorker.com/reporting/2014/01/20/140120fa_fact_goodyear?printable=true.

"Death Dust: The valley fever menace." (Exhibit 4) The article describes the 1977 dust storm in Bakersfield that carried the dust more than 400 miles to Sacramento where more than 100 people got valley fever. CDPH also stated that there were cases in San Francisco from that dust storm. The article also mentions what the military knew about cocci and cocci hot spots during and after WW II, in addition to problems related to solar development in Antelope Valley and San Luis Obispo County.

Is cocci or valley fever a serious health issue? Military and international health organizations thought so. Why?

"Until last year, *C. immitis* was listed as a Select Agent. After culturing it, lab technicians had seven days to report to the Department of Homeland Security that it had been destroyed." (New Yorker article p. 10 of 13) Cocci research requires a Biosafety Level 3 lab to protect researchers.

Arizona's Dr. Galgiani, a valley fever expert, stated that: "In the nineteen-fifties, both the U.S.

and the Russians had bio-warfare programs using cocci," he said. "Generals can't control agents that rely on air currents to disperse them, and it was difficult to use the vector precisely, so it fell out of favor. But terrorists don't care about that stuff—all they care about is perception. A single cell can cause disease, and you can genetically modify it to make it more powerful." "(New Yorker article p. 10 of 13)

And in recent weeks, we know that tick borne Rocky Mountain Spotted Fever, a serious problem in Mexicali for many years has now caused its first documented death in an imperial County resident. Ticks are a problem and many ticks carry numerous pathogens, including *Borrelia burgdorferi* and *Babesia duncani* that are well documented as causing serious human health illnesses (Lyme disease and Babesiosis) that can be incurable in some individuals. I have attended professional medical meetings related to tick borne illnesses every year since 2008 and have learned far more than I ever wanted about tick borne infections.

In Fig. 9-1, what are all the small red and green circle hazardous cleanup sites and cleanup sites? See IC BEIR at 106 of 423. Many of the red circles appear to be in the desert on public lands in places where there are no roads.

9.5.2 Constraints Due to Existing Conditions

It is my understanding that essentially all of the irrigated agricultural areas of the County are subject to liquifaction because of high water tables resulting from irrigation practices. If that is the case, then, according to the constraints related to liquifaction and subsidence (where geothermal facilities are operating), and all lands within the irrigated areas should be avoided as potential places for siting alternative energy facilities. (ICBEIR 108 of 423) This raises questions about what has happened to the water table in the vicinity of industrial scale photovoltaic projects? Have infrastructure elements such as related to irrigation and transportation been affected by changing water tables following removal of large acreages of adjacent agricultural lands form production on a permanent basis? If so, how? And how have such changes impacted infrastructure components and adjoining lands.

10.0 Health Risk Assessment Shouldn't this be a CEQA discussion and not in the IC BEIR?

Fails to discuss the increasing potential for health related risks and impacts from increased particulates and air-borne biological materials including *Cyanobacteria* in desert crusts and *Coccidioides immitis* that can become airborne when previously undisturbed desert lands are converted to industrial scale wind and solar projects. Cyanobacteria neurotoxin exposures have been well documented as being related to increased incidences of ALS or Lou Gehrig's Disease and Parkinson's disease, and cocci is the cause of valley fever in susceptible or sensitive persons.

Wearing N-95 masks to protect one from biological exposures as recommended by Cal OSHA is not really practical during the hottest months of the year. (See Exhibits 20, 21, and 22) In addition to County resident and workers being exposed to blowing dust and sand, there are also two large involuntary populations in State Prisons, with the population of both inmates and employees at Centinela State Prison being exposed to blowing dust and sand on the west side of irrigated agriculture. The population of Calexico is also being exposed to high levels of particulates with their accompanying biological materials because of the intensity of industrial solar project sites to the west and north of the community. Blowing dust and sand are problems because the air quality in Imperial County is already poor. (See Exhibit 40 Imperial County gets failing air quality grade from lung association IV Press April 24, 2013

http://articles.ivpressonline.com/2013-04-24/ozone-or-particle-pollution_38797351)

10.6 **Opportunities**

Just a comment to state that the reason that there is not more community involvement is because most members of the public seems convinced that even when they do participate and submit input and technical concerns related to controversial project approvals. Their experience is that they are ignored when it comes to the final decision and thereafter. Ask Native Americans and the public who participated in discussions, including residents of Ocotillo and organizations, whether or not they believe that County decision-makers considered or cared about their concerns when the County approved the Wind Zero Training facility and zone changes or when the County approved the Ocotillo Wind Energy Facility and its document for Implementation of mitigation and monitoring program. The Wind Zero project triggered two lawsuits and the applicant reportedly failed to provide indemnification funds after he abandoned the project, never the jobs, jobs, jobs that were promised, except for attorneys. And there are three ongoing legal challenges related to the Ocotillo Wind energy project awaiting hearings before the Ninth Circuit Court of Appeals. Litigation because there was so much public opposition to the County approvals. Residents will say that the County has continued to ignore health risks because there are ongoing problems with blowing and sand from the project roads and construction. See Exhibits 36 ECM Ocotillo residents woes continue new dust storm flooding white sludge flow strikes-community http://www.eastcountymagazine.org/print/13947 and Exhibit 37 http://www.eastcountymagazine.org/massive-dust-storm-strikes-ocotillo. Many solar projects

have also been challenged in court.

11.0 Hydrology and Water Quality

11.2 Terminology This section should as "SSA - Sole Source Aquifer" A designation by US EPA for the Ocotillo-Coyote Wells Groundwater Basin in 1996 "Ocotillo-Coyote Wells Aquifer in Imperial County California Sole source Aquifer Final Determination" Federal Register Vol. 61, No. 176, Sept. 10, 1996 Notice. (Exhibit 33) explains the criteria for a SSA designation. http://www.gpo.gov/fdsys/pkg/FR-1996-09-10/pdf/96-23066.pdf The boundaries of the Ocotillo-Coyote Wells SSA are depicted in Exhibit 34.

http://www.epa.gov/safewater/sourcewater/pubs/qrg_ssamap_ocotillocoyotewells.pdf This groundwater basin has been the subject of almost continuous litigation for the past at least four decades, including ongoing litigation.

Comments and concerns related to flooding associated with drainage alterations for renewable energy project are included elsewhere under "flooding".

11.4.1 Hydrology

What is the basis for the assertion that rainfall is approximately 8 inches in the Coyote Mountains (IC BEIR ast 122 Of 423)? No reference is cited. I have lived here since 1977 and find this difficult to believe based on observed rainfall and the scarcity of vegetation compared to the Jacumba Mountains to the southwest of the Coyote Mountains. Why does the discussion of the Imperial Valley Planning Unit (ICBEIR (at 122 of 423) or 124 of 423) fail to include the Ocotillo-Coyote Wells Sole Source Aquifer as designated by US EPA in 1996? See Exhibit 33 for text and Exhibit 34 for the EPA qrg_ssamap_ocotillocoyotewells map .)

See table of inconsistent data (at the end of these comments) for yet another size for Salton Sea at 360 sq mi, (IC BEIR at 122 of 423) converting to 230,400 acres. No source or year for data is given, but this is considerably larger than the 198,269.27 acres listed as the size of Salton Sea at ICBEIR(61 of 423). Fact or source checking and consistency might make the IC BEIR more credible.

Figure 11-1 Surface Waters (ICBEIR 123 of 423) would be more accurate if the blue lines on the east and west sides of the County were identified as <u>ephemeral streams</u> that flow only during heavy rainfall or runoff rather than being identified as "Stream River". Most assuredly what looks from Figure 11-1 to be streams or rivers in SW Imperial County have water only during or following heavy downpour rain events when rain comes so rapidly or is so heavy that the soil cannot absorb all the moisture that falls. Suggest that IC BEIR provide definition for ephemeral

stream and clarify the misimpressions created by Figure 11-1 which makes no sense in light of stating that annual rainfall ranges from less than three inches. (IC BEIR at 122 of 423). Or "average annual precipitation of 3 to 4 inches (IC BEIR 124 of 423) Without additional discussion, Figure 11-1 appears to depict a multitude of perennial streams, where reality is ephemeral stream flow.

Groundwater

Under discussion of the Imperial Valley Planning Area groundwater (IC BEIR at 124 of 423), please note that the Ocotillo-Coyote Wells Groundwater basin in SW Imperial County was designated as a Sole Source Aquifer by the US EPA in 1996. (See Federal Register Vol. 61, No 176, p. 47752-47753, Sept. 10, 1996 notices "Ocotillo-Coyote Wells Aquifer in Imperial County, California; Sole Source Aquifer Final Determination. (Exhibit 33) See also EPA qwg_ssamap_ocotillocoyotewells.pdf for the map of the Ocotillo-Coyote Wells Sole Source Aquifer designated area. Exhibit 34.) Issues related to export of groundwater from the hydrologic boundaries of the Sole Source Aquifer, be they to Mexico or to Plaster City, have been the subject of almost continuous litigation since at least 1972, with export by US Gypsum Co still legally unresolved. Indeed, in case No. 97911 *Sierra Club v. Imperial County and Imperial County Planning Commission, United States Gypsum Company, Real Party in Interest*, the July 8, 2014 Superior Court "Order Awarding Attorney Fees as Costs" states (at p2) that the legal "action served to vindicate an important right and confers a significant benefit on the public in that it alters the manner in which the County of Imperial will in the future evaluate the management of the aquifer under the Ocotillo area of said County."

The EPA designated SSA has boundaries that are hydrologically different from 1810020408 depicted in the SW portion of Figure 11-2 "Watersheds" at IC BEIR (at 126 of 423). It is the US EPA and USGS hydrological information that has consistently been a part of groundwater related litigation for the Ocotillo-Coyote Wells Groundwater Basin. The SSA FR Notice and EPA SSA map attached or included with these comments, in part, because there has been serious damage to the surface drainage patterns of the SSA during the construction and operation of the Ocotillo Wind Energy Project that has resulted in flooding in places where it did not used to occur.

11.4.2 Water Quality

With regard to Table 11-1 Impaired waters within Imperial County (IC BEIR at 128 of 423), why is the Alamo River listed as being in the Imperial Hydrologic Unit and the New River within the Salton Sea unit? Both rivers flow from south to north through the irrigated portion of Imperial County and both discharge waters into the Salton Sea, and both appear according to Figure 11-2 (IC BEIR 126 of 423) to have origins south of the international border in Mexico. Is there really anything logical about the Hydrologic Units today based on the current understanding of the drainages and groundwater flows following decades of USGS groundwater monitoring data? What criteria were used for identifying the boundaries of the HUs and why are some so large and others so small? When were the HUs defined and by what agency?

"From 1994 to 2000, 314 public supply wells were sampled throughout the Colorado River HR; 14 percent of all wells had constituents that exceeded one or more state-defined mean concentration limits for drinking water. The <u>exceedances</u> were caused by constituents that were characterized as <u>radiological (47 percent)</u>, inorganic (39 percent), or nitrates (14 percent) (DWR 2003)." (IC BEIR 130 of 423) (emphasis added)

Since radiologic contamination is not likely to be removed by common water treatment practices from small community water supplies, what actions are being taken to notify users and what are the recommendations provided to reduce exposures? Does such water pose a public health problem? If so, what remedial actions are recommended or required?

What are the more recent data? 2003 is more than 10 years ago. Has progress been made in
dealing with impaired water resources in the past decade, or are monitoring results even worse?

11.4.3 Flood Hazards and Flood Control

How sad that it took the time from the flood damage of Hurricanes Kathleen and Doreen in 1977 and 1976 for the County to accept the fact that flooding from heavy storm events could cause major damage before it developed the Flood Management Plan of 2007 (IC BEIR 130 of 423). If memory serves correctly, it was in 1984 that FEMA told the County that it must adopt FEMA flood designations if anyone in the County was to be eligible for federal flood insurance. After the Board of Supervisors approved the Wind Zero project in a floodway adjacent to Nomirage, land often underwater following even small rainstorms, we don't feel very confident that the County is serious about flooding issues. Fortunately, the Wind Zero Training Facility project failed to materialize and the land has been acquired by someone who is not interested in developing it. Additionally, floodway drainages to the west and north of the townsite of Ocotillo were damaged and/or altered by construction of roads, and other infrastructure related to the development of the Ocotillo Wind Energy Project. See Fig 11-4 Flood Zone Areas (IC BEIR 131 of 423). See video by Jim Pelley of Ocotillo of flooding runoff at the wind turbine project from very brief rainfall July 14, 2014 at https://www.youtube.com/watch?v=IK8V89FhtSI. See also Exhibit 35 with an article and published video by Pelley..

11.6 **Opportunities**

See: http://www.eastcountymagazine.org/wild-ride-video-inside-flash-flood-ocotillo-wind-facility http://www.eastcountymagazine.org/print/13947 (Exhibit 35)

http://www.eastcountymagazine.org/ocotillo-residents%E2%80%99-woes-continue-new-dust-stor m-flooding-white-sludge-flow-strikes-community (Exhibit 36)

http://www.eastcountymagazine.org/print/13947

After observing two years of flooding damage and undercutting of roads in wind turbine project which cross the floodway and floodplains north, west, and south of Ocotillo, we sincerely question the commitment on the part of County decision-makers and county departments to implement, and/or enforce mitigation and monitoring requirements approved for renewable energy projects in Imperial County. The scores of articles in East County Magazine (www.eastcountymagazine.org) continue to document a damaged environment following construction of the Ocotillo Wind Energy Project. These articles with photo documentation are provided to disclose the facts that there have been some significant and on-going adverse unmitigated consequences related to the development of the industrial scale wind project on previously protected lands managed by BLM in SW Imperial County.

12.0 Land Use

12-4 Existing conditions Table 12-1 (IC BEIR 135 of 423) provides yet another different size for the Salton Sea. This time the asserted acreage is from Imperial County dated 2007. So why can't the IC BEIR decide what it wants to consider the size of the Salton Sea. See table of inconsistent data found in IC BEIR at end of these comments. Given the differences in acreage for Salton Sea found in IC BEIR, what credibility can be afforded to any other technical or numeric information in IC BEIR or the thoroughness of biological resources inventories when geographic information is unreliable?

In Table 12-2 for Land Ownership in Imperial County (ICBEIR 138 of 423), does "undetermined" mean private ownership? Undetermined is the largest category of land ownership after BLM! I cannot believe that the Assessor's Office is unaware of the ownership of 813,695 acres of land in the County. Fig 12-2 (IC BEIR 139 of 423) makes it appear that undetermined ownership equates to private ownership. Figure 12-2 (IC BEIR 139 of 423) depicts a large acreage in and at the southern end of Salton Sea as being "local government". But, specifically, what governmental

agency owns that land and for what purpose? Is this land owned by Imperial Irrigation District or some other political entity? It would be interesting to know the acreage designated agricultural lands, industrial/commercial, and residential.

Why aren't the urban areas of Calexico, El Centro, Holtville, Imperial, Brawley, Westmoreland, and Calipatria identified by name in Figure 12-3 "Urban and Community areas" at IC BEIR (141 of 423)? To use names for very small population communities and fail to identify the larger population urban areas makes no sense even if the County does not have ultimate land use decision making authority in these larger urban areas. Real people live there and real people will be impacted by activities and projects on lands under County approvals, especially if projects include earth disturbing activities and construction activities which have the potential to create dust which can and will migrate off site.

12.6.2 High wind resource areas

The text is this section is in sharp contrast to the public statements by Brian Mooney that there are not appropriate sites for wind energy development in Imperial County because places with high winds are at high elevation and in wilderness areas and therefore off limits. (See video made by Jim Pelley of the community meeting in Ocotillo where Mooney talked about wind energy and the lack of potential for wind energy development.) (Exhibit 37) The failures related to the Ocotillo Wind energy Facility and ongoing mechanical problems have been well documented in articles and video links by East County Magazine. See: "Was it Fraud? Experts Raise Serious Questions after Low First-year Energy Production at Ocotillo Wind Project" April 30, 2014 (Exhibit 25) http://www.eastcountymagazine.org/print/15554

http://eastcountymagazine.org/was-it-fraud-experts-raise-serious-questions-after-low-first-year-en ergy-production-ocotillo-wind-pr It is not only those residing near the project, but Native Americans, especially the Viejas and Quechans have continually opposed the project. "It was heartbreaking to see this project desecrate such a historically and culturally significant landscape, and it's even worse when you find out that it was built on false claims by the developer, and with the assistance of the BLM. "-- Anthony Pico, Chairman, Viejas Band of Kumeyaay Indians. The article and its links are excellent and point out the troubling consequences of the rush or fast track effort to approve projects without giving serious consideration to all of the technical, biological and cultural resource issues.

Compare the information in Fig. 12-6 (ICBEIR 147 of 423) for wind energy with the locations of wilderness areas and sensitive species and designated habitats Fig. 20-3 (IC BEIR 209 of 423) and Department of Defense lands and bombing ranges Fig. 12-2 Land Ownership (ICBEIR 139 of 423) to realize that there is actually very limited or no potential for development of industrial scale wind energy projects as both Brian Mooney and Andy Horne has noted in their oral comments at meetings related to this general Plan Update for renewable energy. ICBEIR should therefore be corrected.

Please note that photovoltaic energy production is more efficient in locations where ambient temperatures are lower., so summer energy production in Imperial County will be lower than if PV panels were places closer to point of uses in coastal areas where ambient temperatures are lower.

20.0 Potential Alternative Energy Generating suitability

It is shocking that Fig. 20-4 (ICBEIR 210 of 423) fails to identify BLM designated wilderness areas depicted in Figure 20-3 (ICBEIR 209 of 423) and Figure 20-5 (ICBEIR 211 of 423) as having any visual resource values of high value worthy of maintenance. It is my understanding that wilderness designation places significant value on visual resources. However, both Figures 20-3 and 20-5 are able to correctly locate the mountain ranges in Imperial County, even though

text elsewhere contains errors!

Detailed comments on biological resource issues will be left to other organizations and biologists.

13.0 Mineral Resources

There has been inadequate time to review the entire IC BEIR in great detail, however, it is expected that discussions of mineral resources will contain errors and inconsistent information as did other sections with which we are more familiar. Given the potential for adverse impacts on biological resources, it may or may not be wise to consider locations such as abandoned sand and gravel operations or mines as potential sites for industrial scale solar projects. Of course there is also the concern expressed by the representative from the marine Corps base at Yuma, Arizona, that certain locations and projects may be incompatible with military operations even if they are near existing transmission lines. See Fig. 13-1 (IC BEIR 151 of 423)

IC BEIR text review discontinued at IC BEIR 152 of 423 for these comments. So no review of the following at this time. We are hopeful that others will review those sections

- **14.0** Noise (starting 155 of 423)
- **15.0 Population and housing** (starting 165 of 423)
- **16.0 Public Services** (starting 174 of 423)
- **17.0 Recreation** (start 184 of 423)
- **18.0** Transportation/Circulation (start 191 of 423)
- **19.0 Utilities and Services** (start 199 of 423)
- **20.0** Potential Alternative Energy Generation Suitability Areas (start 206 of 423)

TABLES and EXHIBITS ON FOLLOWING PAGES

COMBINED LIST OF EXHIBITS FOLLOWS COMMENTS FOR NOP

Tables of inconsistent numeric information to be checked for IC BEIR 6-2014

Feature	Acreage	Source of data
Salton Sea	incorrect location in NE corner	IC BEIR (52 of 423)
	"approximately 245,000 acres	IC BEIR (26 of 423)
	198,269.27 acres	ICBEIR(61 of 423)
	376 sq. mi. or 240,640 ac	ICBEIR (53 of 423)
	211,840 acres	1993 GPU III-2
	240,640 acres	Salton Sea Authority & ICBEIR 53
	360 sq mi or 230,400 acres	IC BEIR (122 of 423)
	171,682.08 acres	IC BEIR (135 of 423)
Sonny Bono Wildlife Refuge	31,787.3 ac	ICBEIR (61 of 423) USFWS
	37,400.33 ac	ICBEIR (62 of 423) USGS
Imperial Natl Wildlife Refuge	10,332.74 ac	USFWS
	13,884.46 ac	USGS
Agricultural land		
	551,280.30 acres	IC BEIR (135 of 423)
	540,942 acres farmland	ICBEIR (36 of 423)
	588, 416 acres irrigated	ICBEIR (36 of 423)
Mountain ranges	locations	
Fig. 20-3	correct	ICBEIR (209 of 423)
Fig. 20-5	correct	ICBEIR (211 of 423)
Sec. 5.4	incorrect Orocopia/Santa Rosa	ICBEIR (53 of 423)
Fig. 5-4	correct	ICBEIR (60 of 423)
Sec. 7.4	Incorrect	ICBEIR (83 of 423)

Listed species of animals

Biological resources	Source of data
Species of mammals	
41 species at Sonny Bono Refuge	IC BEIR 55 of 423
20 listed species known in IC	ICBEIR (405-407 of 423)
Species of birds	
421 species at wildlife refuge	Sonny Bono Wildlife Refuge 2009 Wildlife list FWS
over 400 species at wildlife refuge	IC BEIR 55 of 423
37 listed species known in IC	IC BEIR 402-405
Reptiles 10 listed species	ICBEIR (401, 402 of 423)
Plants numerous species	ICBEIR (397-400 of 423)

Exhibit 49

January 30th, 2015

To: California Energy Commission Dockets Office, MS-4 Docket No. 09-RENEW EO-01 1516 Ninth Street Sacramento, CA 95814-5512 Email: <u>docket@energy.ca.gov</u>

Subject: Request for a new Desert Renewable Energy Conservation Plan Alternative

cc:

Sally Jewell Secretary of the Interior 1849 C Street, NW Washington, DC 20240

James G. Kenna, State Director, Bureau of Land Management, California

Dan Ashe, Director, US Fish and Wildlife Service

Charlton Bonham, Director, California Department of Fish and Wildlife

Robert B. Weisenmiller, Chair, California Energy Commission

Michael Picker, President, California Public Utilities Commission

US Senator Barbara Boxer

US Senator Diane Feinstein

US Representative Col. Paul Cook (Ret.) 8th Congressional District

San Bernardino County Supervisors

Inyo County Supervisors

Imperial County Supervisors

Los Angeles County Supervisors

Riverside County Supervisors

Kern County Supervisors

To Whom It May Concern,

The undersigned groups and individuals on this letter officially request that a new alternative be considered for the Desert Renewable Energy Conservation Plan. The current Desert Renewable Energy Conservation Plan (DRECP) includes no alternative that accurately reflects existing California state energy priorities that require energy efficiency measures of all types, including rooftop solar (classified by the state as an energy efficiency measure), be fully implemented prior to developing large, remote power generation projects of any type, nor one that incorporates the US-EPA's Re-Powering America's Lands program when siting the latter. The DRECP draft EIR/EIS states: *"Multiple commenters noted that distributed generation, energy efficiency, and the siting of renewable energy on brownfield sites should be considered as components of a single alternative rather than as independent alternatives..."* (Section II.8-3). Our comment is presented as that alternative. This failure to consider detailed analysis of viable, cost-effective and less harmful alternatives to those listed in the existing draft DRECP appears to violate both NEPA and CEQA and should be remedied by including the point-of-use energy efficiency and solar alternative described in this letter.

PURPOSE AND NEED.

Current Focus. The DRECP draft EIR/EIS says that "Alternatives evaluated in detail in the Draft DRECP and EIR/EIS must meet the objectives, REAT agencies' purposes and needs, and the regulatory framework described in Volume I. The BLM's and USFWS' statements of purpose and need and the CEC's, CDFW's, and CSLC's objectives set the context for the development and analysis of alternative scenarios." (Section 11.8-4)

Yet both the Inter-Agency and BLM purpose and need statements are primarily focused on rapidly expanding large-scale energy development solely in fragile desert ecosystems, rather than on the urgent need to transition the state's electrical systems to clean power in the fastest and least harmful way, and to permanently conserve our intact, carbon-sequestering desert wildlands. The BLM's Purpose and Need Statement overlooks the recent data concerning the direct and cumulative negative impacts of recently constructed large renewable energy projects on both public and private lands. Further, the purpose and need statements in the current draft of the DRECP risk stifling innovation and conflict with and undermine existing laws, including landmark AB32. AB32 clearly acknowledges a diverse suite of tools to address climate change, including energy efficiency, demand response, storage solutions and protection of our ecosystems and water sources to bolster resilience, in addition to generation of renewable energy.

Reframing is Needed. As drafted, the DRECP errs by positioning a single means, utility-scale desert renewable energy, to be an end unto itself.

Review of Alternatives. Once the Purpose and Need is properly framed, the presumption that widespread development of pristine desert ecosystems must be the primary means used to facilitate the transition to renewable energy can be evaluated in a larger context that prioritizes desert conservation on par with renewable energy development.

In contrast, focus on the point-of-use solar alternative, developed by the California Public Utilities Commission and investor-owned utilities and known as the California Energy Efficiency Strategic Plan (CEESP), would avoid the industrial development of vast tracts of public lands and construction of hundreds of miles of associated and expensive transmission lines. In contrast to the base case large-scale desert development alternative, the point-of-use solar alternative with the twin objectives of: 1) rapid and responsible transition to renewable energy, and 2) conservation, stewardship, and protection of California desert ecosystems.

The DRECP draft EIR/EIS undertakes a thorough and detailed analysis of utility-scale central-station renewable energy in the Acreage Calculator (Appendix F3), based on modeling of different possible future scenarios, growth forecasts, assumptions, and multiple variables, with several revisions since 2011. Although not an Alternative, it is used to inform the Alternatives analyzed by the DRECP planners. But this detailed analysis favors utility-scale renewable energy power stations; the DRECP has not undertaken a similar level of analysis of DG and energy efficiency calculations that could meet the energy needs of the state without using desert wildlands. On page 2 of Appendix F3, the DRECP planners state that the Acreage Calculator for renewable energy needs would provide "the acreage of renewable development that might need to take place in California and in the DRECP area in order to satisfy those needs." The emphasis of the word "might" indicates to us that other alternatives to developing large acreages of desert land in California can be made available to meet the state's renewable energy goals.

Summary. The most effective way to conserve the California desert, in the context of renewable energy development, is to not make the California desert the focal point of solar energy development in the state. A focus on the point-of-use energy efficiency/solar energy alternative, developed by the California Public Utilities Commission and investor-owned utilities and known as the California Energy Efficiency Strategic Plan (CEESP), is preferable to the current draft alternatives in the DRECP. The CEESP Alternative most effectively addresses the climate crisis that drives the renewable energy development the DRECP is intended to accommodate.

CEESP ALTERNATIVE.

Introduction. The better alternative is rapid implementation of the highest-priority state energy plan already adopted. The California Public Utilities Commission (CPUC) is driving

energy policy in California, and the **California Energy Efficiency Strategic Plan (CEESP)** is current regulatory policy dating back to 2007. California's utilities developed the CEESP cooperatively with the CPUC. The current version is available online at: <u>http://www.energy.ca.gov/ab758/documents/CAEnergyEfficiencyStrategicPlan_Jan2_011.pdf</u>.

California law establishes energy efficiency as the highest priority resource in meeting California's energy needs. The CEESP presents a "single roadmap to achieve maximum energy savings across all major groups and sectors in California," by implementing rooftop solar, and bold appliance and building efficiency standards. (http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/)

Role of DRECP in Implementing Current Law. The CEESP needs implementation now to reach the explicit 2020 energy efficiency and rooftop solar targets for existing and new residential, commercial, and industrial buildings in the CEESP. It prioritizes energy efficiency and rooftop solar consistent with state law and the loading order (detailed below). These CEESP targets must be incorporated into each utility's biennial Long Term Procurement Plan in the current planning cycle at the CPUC. The DRECP should support and inform this process. The CEESP will also help meet renewable targets beyond 2020 as

noted below.

California utility procurement is currently incompatible with California Public Utilities Code Section 454.5(b)(9)(C), which requires that an electrical corporation "shall first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible." This incompatibility could be resolved in a DRECP that selects our alternative and tracks the CEESP, but is instead currently limited by the singular focus on remote, large-scale power production in all alternatives studied in the current draft of the DRECP.

Governor Brown, through Executive Order B-18-12 (March 2012) is already implementing the substantive elements of the CEESP for state buildings. The target of 50 percent of existing state buildings achieving Zero Net Energy (ZNE) by 2025 in Executive Order B-18-12 accelerates the CEESP target for existing commercial buildings, 50 percent ZNE by 2030, by five years. Executive Order B-18-12 states (in part):¹

IT IS FURTHER ORDERED that all new State buildings and major renovations beginning design after 2025 be constructed as Zero Net Energy facilities with an interim target for 50% of new facilities beginning design after 2020 to be Zero Net Energy. State agencies shall also take measures toward achieving Zero Net Energy for 50% of the square footage of existing state-owned building area by 2025.

¹ See: <u>http://gov.ca.gov/news.php?id=17506</u>.

SCE received approval from the CPUC to construct up to 500 MW of solar on warehouse rooftops in the LA Basin in 2008, the same year the CEESP was first issued.² Half of this capacity is utility-owned, with the remainder owned by third parties supplied via power purchase agreements. California's utilities already have an approved template for large-scale development of solar energy development commercial rooftops. The SCE warehouse rooftop solar project was approved by the CPUC as 100% RPS-eligible. See this paragraph from the attached CPUC press release: "*Prior to today's decision, utility solar programs in the one to two MW range had limited participation in the California Solar Initiative or Renewables Portfolio Standard (RPS) program. Edison's program creates a new avenue for developing such smaller sized solar projects."*

Arbitrary Solar Designations and valuations. The CPUC treats behind-the-meter rooftop solar as equivalent to an energy efficiency measure and does not count it toward meeting Renewable Portfolio Standard (RPS) targets. It is therefore "first in line" in the loading order as an energy efficiency measure while at the same time achieving the same greenhouse gas reductions as RPS-eligible solar energy alternatives.

The RPS is one tool toward achieving greenhouse gas reductions from power generation. However, AB32, California's landmark greenhouse gas reduction legislation, is focused on the ultimate goal – removing carbon from electric generation. That must be the state's focus, not arbitrary classifications between solar panels that count toward meeting RPS mandates (large solar installations) and solar panels that do not (rooftop solar), and compromising California's deserts based on this arbitrary distinction.

Why the CEESP Alternative? If implemented quickly, the CEESP Alternative will greatly increase rooftop solar and energy savings, generating greenhouse gas reductions at the point-of-use and negating the need to disrupt carbon-storing desert ecosystems.

LOADING ORDER FOR ENERGY PROCUREMENT IN CA

Established policy undermined by DRECP. The CPUC and CEC have established the following loading order for electricity procurement:

First Priority is Energy Efficiency and Demand Response.

Broad economic and social justice benefits can be derived from reducing electricity usage and demand rather than adding high-cost large-scale remote utility projects with associated long transmission lines burdening rate-payers. Energy efficiency has no environmental costs or negative impacts to public lands, which supports the second purpose and need of the DRECP, which is to protect and steward public lands.

² CPUC press release, *CPUC Approves Edison Solar Roof Program*, June 18, 2009.

The 2005 CPUC and California Energy Commission's Energy Action Plan II, declared:

The goal is for California's energy to be adequate, affordable, technologically advanced, and environmentally-sound, cost effective energy efficiency is the resource of first choice for meeting California's energy needs. Energy efficiency is the least cost, most reliable, and most environmentally- sensitive resource, and minimizes our contribution to climate change.

Distributed renewable generation in the built environment requires no mitigation to offset significant impacts to natural and cultural resources of public lands, valuable groundwater resources are not depleted, carbon in desert soils is not released, biodiversity of desert ecosystems is not significantly impacted, and costly long transmission lines are not needed.

Second Priority is Remote Procurement of Renewables, if needed.

According to the loading order, only after energy efficiency measures and demand response are maximized should supply-side utility-scale renewable energy be considered. The current draft of the DRECP treats remote procurement of renewables as the priority option. If California needs any remote renewable energy after maximizing development of energy efficiency and point-of-use solar, the first lands for development consideration should be the brownfield, Superfund, and other degraded sites in need of remediation as identified by the US-EPA in their RE-Powering America's Land initiative (http://www.epa.gov/oswercpa/).

NEPA, CEQA AND MULTIPLE AGENCY BASIS FOR INCLUDING OUR ALTERNATIVE

Since the DRECP plan is a multi-agency blueprint for achieving renewable energy goals in the state of California, the Objectives and Purpose and Need Statement must be changed to reflect the stated priorities of these agencies, and accommodate a more meaningful alternatives analysis that includes the CEESP Alternative.

NEPA Alternatives Analysis. The National Environmental Policy Act directs the BLM to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources;..." (NEPA Sec102(2)(E))

and to analyze:

"Reasonable alternatives includ[ing] those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."

If the DRECP follows public opinion and includes more environmental protections in the Purpose and Need Statement, while rapidly reducing GHG emissions and improving the reliability of our electricity grid through implementation of the CEESP Alternative, it will utilize an alternative that is not only popular, but economically and technologically more feasible than the pending DRECP preferred alternative.

The CEESP Alternative is a solution that reduces any perceived need for: (1) Environmental reviews at a local and a landscape level; (2) The "Taking" of protected species; (3) Local and landscape mitigation plans and (4) Complex and costly permitting processes; so the BLM can focus on its critical role in the conservation priorities that should form the purpose of the DRECP with respect to public lands. As such, the changes we are requesting conform to the requirements of NEPA.

USFWS Goals Met By CEESP Alternative. A new Purpose and Need Statement and inclusion of the CEESP Alternative would also help meet the first stated goal of the Fish and Wildlife Service in:

"designing alternatives for a renewable energy program and conservation strategy for all public trust resources, including natural communities, wildlife, and special-status species consistent with the conservation objectives under the ESA, NEPA, Migratory Bird Treaty Act, Eagle Act, and other applicable federal laws, regulations, and policies. USFWS also worked with interested parties to determine an environmentally sustainable proportion of the state's renewable energy portfolio to be met in the California deserts."

It would also eliminate the need for the second stated role of USFWS which is to:

"prepare the EIS element of the Plan that considers the USFWS's proposed action under NEPA (i.e., to consider the issuance of Section 10[a][1][B] permits for the incidental take of Covered Species on nonfederal lands within the GCP Permit Area and the issuance of take permits under the Eagle Act on both federal and nonfederal lands within the Plan Area). The USFWS is also responsible for consulting under Section 7(a)(2) of the ESA at the request of other federal action agencies, such as BLM, if the agency's action may affect federally listed species or designated critical habitat, as described earlier in Section 1.1.2.1.2, Federal Endangered Species Act."

The CEESP Alternative would eliminate the need for any Take permits or other modifications that would otherwise compromise the Endangered Species Act. This would greatly reduce environmental impacts and significant effects, not to mention reduce the administrative burdens on Federal Agencies such as BLM and USFWS that remote-generation permits create.

CEQA Alternatives Analysis. A new Purpose and Need Statement accompanied and inclusion of the CEESP Alternative would also better meet the requirements of the California Environmental Quality Act (CEQA) which are, in relevant part:

"An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible." (http://resources.ca.gov/ceqa/docs/2010 CEQA Statutes and Guidelines.pdf)

The CEESP Alternative Also Meets Multiple California State Agency Goals More Effectively. A new Purpose and Need Statement alongside implementation of the CEESP Alternative would also help the DRECP better meet the conservation objectives of the California Energy Commission, California Department of Fish and Wildlife, and California State Lands Commission which are:

"Reduce the biological and other environmental impacts of future utility-scale renewable energy developments in the Plan Area by designating appropriate areas for renewable energy development within the context of a landscape-scale conservation plan that are sufficient to accommodate the foreseeable demand for renewable energy in the DRECP through 2040. "

"Provide for the long-term conservation and management of Covered Species within the Plan Area and preserve, restore, and enhance natural communities and ecosystems in which those species are found by focusing renewable energy development away from areas of greatest biological importance or sensitivity; coordinating and standardizing biological avoidance, minimization, mitigation, compensation, conservation, and management requirements for Covered Activities within the Plan Area; and taking other actions to meet conservation planning requirements in state and federal law. "

THE DG ALTERNATIVE SHOULD NOT BE REJECTED

The DRECP draft EIR/EIS states on page II.8-7: "For a variety of reasons (e.g., upper limits on integrating distributed generation into the electric grid, cost, lack of electricity storage in most systems, and continued dependency of buildings on grid-supplied power), distributed energy generation alone cannot meet the goals for renewable energy development."

Yet as discussed above, no detailed and up-to-date analysis of a DG Alternative was included in the draft plan, similar to the analysis of other Alternatives which favor large-scale wildland use.

The DRECP seeks to accommodate the development of up to roughly 20,000 MW of renewable energy projects. Only about 3,000 MW of renewables have been built in the

DRECP area. Yet less than 5% of over 100,000 MW of rooftop and parking lot solar potential has been developed to date in California. Over 39,000 MW of DG PV can be utilized on parking lot structures alone (see attached calculation, Parking Lot Solar Potential in California, Bill Powers, December 15, 2014).

A more current analysis is needed of DG renewable energy implementation. For example, the draft DRECP EIR/EIS states on page II.8-7: "Integration and reliability concerns were highlighted due to local renewable generation being sent to the grid through power lines and equipment that were primarily designed to transport energy in the opposite direction. Unless managed appropriately, the integration of local renewable energy can impact the safe and reliable operation of distribution grids."

This needs more analysis. California can add 20,000 MW DG PV without transporting any energy in the opposite direction. California's IOU have spent hundreds of millions of dollars via their smart grid programs to allow bidirectional flow on distribution circuits and substations. The issues bulleted are being addressed over time. PG&E, for instance, says that 100% of critical substations will be microprocessor controlled by 2015.

On page II.8-3 the draft DRECP EIR/EIS states: "Multiple commenters noted that distributed generation, energy efficiency, and the siting of renewable energy on brownfield sites should be considered as components of a single alternative rather than as independent alternatives, see Section II.8.2.1."

Our response to this is that multiple commenters continue to call for distributed generation, energy efficiency, and the siting of renewable energy on degraded land/brownfield sites adjacent to existing transmission lines as a single stand-alone alternative. That alternative would be known as the California Energy Efficiency Strategic Plan (CEESP) Alternative. The CEESP alternative also accommodates the siting of renewable energy on degraded/brownfield sites adjacent to existing transmission lines.

On page II.8-3 the draft DRECP EIR/EIS states: "...(NREL 2010; Linvill et al 2011; California Office of the Governor 2012; Zichella and Hladik 2013). For a variety of reasons (e.g., upper limits on integrating distributed generation into the electric grid, cost, lack of electricity storage in most systems, and continued dependency of buildings on grid-supplied power), distributed energy generation alone cannot meet the goals for renewable energy development."

Our response is that there is a major difference between point-of-use, customerprovided solar meeting all the goals for renewable energy development in the DRECP and customer-provided solar offsetting only about 15 – 30 percent of the renewable energy production in the DRECP as is the case in the three scenarios evaluated in the DEIR/EIS (basecase 10,000 MW customer-side PV, 15,000 MW, and 20,000 MW). In Appendix F3, p. 22, the MW capacity of wind, geothermal, biofuels, and utility DG is reduced as the amount of customer-provided DG solar is increased. This has the effect of leaving the amount of utility-scale PV and solar thermal by less than 1,200 MW, from 9,869 MW to 8,690 MW, as the amount of customer-provided DG solar increases by 10,000 MW. If the total 2040 MW capacity of wind, geothermal, and biofuels (for California) is held constant across the three customer-provided DG solar scenarios, increasing the amount of customer-provided DG solar from 10,000 MW in the base case scenario to approximately 30,000 MW by 2040 would completely eliminate the need for any of the combined 16,323 MW of utility-scale PV, utility scale solar thermal, wind, or utility DG in the DRECP base case scenario. The implementation of the CEESP Alternative would result in customer-owned DG solar increasing at a rate of approximately 15,000 to 20,000 MW per decade beginning in the 2011-2020 ten-year period, without considering the added MW from solar projects on degraded/brownfield sites. Customerside DG solar additions would exceed 30,000 MW by 2030, ten years before the 2040 target date in the DEIR/EIS, if the CEESP Alternative is fully implemented.

Citing to a 2011 conference on distributed generation as the basis for rejecting California state policy, the California Energy Efficiency Strategic Plan, is not supportable. Numerous experts either spoke at or participated in Governor Brown's DG conference at UCLA in July 2011. Advocates of utility-scale remote renewable energy projects advanced the pessimistic bullet points included in the DEIR/DEIS discussion of a DG alternative. Advocates of the point-of-use customer-side DG solar approach pointed out the flaws and inconsistencies in the positions advanced by the "big and remote" advocates. One flaw is the assertion that electricity moves only one way on the California transmission and distribution grid and therefore only a nominal amount of customer-side generation can be added before causing grid reliability problems. In reality, even with no upgrades, the existing California grid can absorb about 20,000 MW of customer-side DG solar without causing any backflow on the grid³. In other words, there are no current grid reliability impediments to adding 20,000 MW of customer-side DG solar. At the same time, California investor-owned utilities are rapidly upgrading their distribution systems to allow full two-flow and maximize their ability to absorb customer-side DG. PG&E indicated in its 2011 Smart Grid Plan that 100 percent of its critical distribution substation circuit breakers would be microprocessor controlled (twoway) by 2015

(See p. 61:

http://www.pge.com/includes/docs/pdfs/shared/edusafety/electric/SmartGridDeploym entPlan2011_06-30-11.pdf). SDG&E claims to be the national leader in grid modernization, including the upgrading of its distribution system for two-way flow of electricity

³ Powers, December 16, 2009 opening testimony, CEC's Ivanpah Solar Electric Generation System proceeding, pp. 7-8, http://tinyurl.com/p2s5zg8.

(See p. 39:

https://www.sdge.com/sites/default/files/documents/1647058660/Smart%20Grid%20A nnual%20Report%202013.pdf?nid=9126).

It is also important to underscore that the DRECP targets are for 2040. Over the next 25 years it is reasonable to assume that the smart grid modernization programs the investor-owned utilities are spending hundreds of millions of dollars per year of ratepayer funds to implement will fully address in a timely fashion any potential bottlenecks on the grid to full utilization of customer-side DG solar.

On page II.8-3 the draft DRECP EIR/EIS states: "However, this (DG PV) alternative would not respond to the USFWS's purpose and need to advance DOI's national policy goals to identify and prioritize specific locations best suited for large-scale production of solar energy on public lands and encourage the production, development, and delivery of renewable energy as one of the DOI's highest priorities. . . It (DG PV alternative) would also not meet the objective because it would not provide for the long-term conservation and management of Covered Species within the DRECP."

Our response is that the reasons given in the DEIR/DEIS for rejecting an energy efficiency/customer-side solar alternative are either circular or nonsensical. For example, Objective 1 of DRECP is to build large-scale renewables in the desert, therefore point-of-use DG solar must be rejected as not conforming to purpose of DRECP, even though the alternative would result in maximum desert conservation. Objective 2 is to provide for the long-term conservation and management of Covered Species within the DRECP. The DEIR/EIS stated that a distributed generation alternative would not meet this objective, yet the DG alternative leaves these species, their habitats, and their ecological linkages intact and would be the alternative that best meets long-term conservation of the California desert.

CONCLUSION.

In the past 5 years, large-scale renewable energy projects have changed the landscape of the California Desert region. We now have a good idea of some of the serious problems that arise when streamlining of very large projects takes place. The use of "adaptive management" mitigation has been based on finding solutions to problems that arise after approval, and should be considered a last resort, not a standard operating practice because of rushed and inadequate permitting processes. Among some of the problems we have witnessed are undercounts of desert tortoise populations, a blade throw from a large wind turbine in a public place, unmitigated large amounts of fugitive dust from construction, bird kills from large scale wind and solar projects, lower energy output than that promised in application documents, much higher energy costs than anticipated, and requests for increased water and natural gas use. If there were no other options, perhaps this level of damage might make some kind of sense, but with alternatives like the CEESP, there is no reason for ongoing and expanding harm to our natural heritage simply to produce renewable power that can more efficiently and reliably be produced at or very near load centers.

The agencies involved have a unique conservation opportunity within the framework of the DRECP to choose an alternative that utilizes the built environment for sustainable, reliable, local solutions to California's renewable energy needs. Thank you for considering our requests.

Sincerely,

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Exhibit 50



A Special Notice to IID Customers

2015 Electric Retail Rate Increase

Imperial Irrigation District's Board of Directors held public rate hearings to consider a proposed retail rate increase to its electric rate schedules. The overall average rate increase of 7.4 percent in retail electric rates to be effective January 2015 was approved by the board on Nov. 18, 2014.

IID conducted a comprehensive cost-of-service study with a goal of providing the proper balance of rate structures that will provide reasonable revenue stability, while considering the many factors of supplying reliable electric service to thousands of customers of very diverse characteristics.

IID last raised its rates in 1994, which included a 3.5 percent increase to its rates structure. Even with the rate increase, IID remains competitive in comparison to other neighboring utilities. IID's charge to a residential customer using the same amount of energy is 23 percent less than Southern California Edison and 21 percent less than San Diego Gas & Electric. In addition, the total average rate including the rate increase for 2015 will be lower than the average rate charged to customers back in 2011.

After the rate increase, IID energy customers will see the following average monthly increase on their electric bills:

Customer Class	Monthly Average kWh Usage	Mo	nthly Bill Impact
Residential	1,060	S	10.20
Small Commercial	2,500	S	17.74
Municipal Service	5,650	S	43.68
Agricultural Pumping	7,450	S	48.41
Large Commercial	78,000	S	184.51
General Wholesale	65,000	S	1,545.58

The revenues generated by the rate increase will help IID:

- Maintain its financial integrity
- Cover the increasing cost of providing electric service to its customers
- · Comply with many state and regulatory mandates
- Meet state environmental mandates to reduce greenhouse gas emissions and satisfying renewable portfolio standards
- Support the advancement of the regional economy
- Implement a transmission strategy that facilitates the development of renewable energy resources, and the export of those resources out of the Imperial Valley and into the greater California region

We are committed to helping you find the right programs, tools and tips to help you save energy and money. For more information about the rate increase, visit *www.iid.com/energyrates*. Customers with questions regarding the rate increase may contact Customer Service at 1-800-303-7756.

IMPERIAL IRRIGATION DISTRICT OPERATING HEADQUARTERS + P.O. BOX 937 + IMPERIAL, CA 92251 Exhibit 51

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Environmental impacts of utility-scale solar energy

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ABSTRACT

Renewable energy is a promising alternative to fossil fuel-based energy, but its development can require a complex set of environmental tradeoffs. A recent increase in solar energy systems, especially large, centralized installations, underscores the urgency of understanding their environmental interactions. Synthesizing literature across numerous disciplines, we review direct and indirect environmental impacts – both beneficial and adverse – of utility-scale solar energy (USSE) development, including impacts on biodiversity, land-use and land-cover change, soils, water resources, and human health. Additionally, we review feedbacks between USSE infrastructure and land-atmosphere interactions and the potential for USSE systems to mitigate climate change. Several characteristics and development strategies of USSE systems have low environmental impacts relative to other energy systems, including other renewables. We show opportunities to increase USSE environmental co-benefits, the permitting and regulatory constraints and opportunities of USSE, and highlight future research directions to better understand the nexus between USSE and the environment. Increasing the environmental compatibility of USSE systems will maximize the efficacy of this key renewable energy source in mitigating climatic and global environmental change.

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1. Introduction

Renewable energy is on the rise, largely to reduce dependency on limited reserves of fossil fuels and to mitigate impacts of climate change ([58, 110, 150]). The generation of electricity from sunlight directly (photovoltaic) and indirectly (concentrating solar power) over the last decade has been growing exponentially worldwide [150]. This is not surprising as the sun can provide more than 2500 terawatts (TW) of technically accessible energy over large areas of Earth's surface [82,125] and solar energy technologies are no longer cost prohibitive [9]. In fact, solar power technology dwarfs the potential of other renewable energy technologies such as wind- and biomass-derived energy by several orders of magnitude [150]. Moreover, solar energy has several positive aspects – reduction of greenhouse gases, stabilization of degraded land, increased energy independence, job opportunities, acceleration of rural electrification, and improved quality of life in developing countries [17,126] – that make it attractive in diverse regions worldwide.

In general, solar energy technologies fall into two broad categories: photovoltaic (PV) and concentrating solar power (CSP). Photovoltaic cells convert sunlight into electric current, whereas CSP uses reflective surfaces to focus sunlight into a beam to heat a working fluid in a receiver. Such mirrored surfaces include heliostat power towers (flat mirrors), parabolic troughs (parabolic mirrors), and dish Stirling (bowl-shaped mirrors). The size and location of a solar energy installation determines whether



Fig. 1. Annual installed grid-connected photovoltaic (PV) capacity for utility-scale (>20 MW) solar energy schemes and distributed solar energy schemes (i.e., nonresidential and residential) in the United States. Total PV capacity was 900 MW in 2010; approximately double the capacity of 2009. Data reprinted from Sherwood [114]. Photo credits: RR Hernandez, Jeff Qvale, National Green Power.

it is distributed or utility-scale. Distributed solar energy systems are relatively small in capacity (e.g., <1 megawatt [MW]). They can function autonomously from the grid and are often integrated into the built environment (e.g., on rooftops of residences, commercial or government buildings; solar water heating systems; portable battlefield and tent shield devices; [25,102]). Distributed solar contrasts strikingly with utility-scale solar energy (USSE) enterprises, as the latter have relatively larger economies of scale, high capacity (typically > 1 MW), and are geographically centralized -sometimes at great distances from where the energy will be consumed and away from population centers. In the United States (US), solar energy has grown steadily over the past decade and rapidly in recent years (Fig. 1). The USSE capacity in this country quadrupled in 2010 from 2009, while both residential and nonresidential capacity increased over 60% during that same period. Similar increases in USSE have also been observed in Australia, China, Germany, India, Italy, and Spain [90,111,113,128,139].

As a paradigm of clean and sustainable energy for human use, reviews on the environmental impacts of solar energy date back to the 1970s [49,71]. For example, Lovins [71] provided a conceptual framework by which an energy scheme's position along a gradient from soft (benign) to hard (harmful) is determined by the energetic resiliency (or waste) and environmental conservation (or disruption) for its complete conversion from source to final end-use form. More recent reviews of the environmental impacts of solar energy systems have emphasized fundamental life-cycle elements (upstream and downstream environmental impacts associated with development; [126]) or were focused on specific regions (e.g., Serbia; [90]) or fauna of interest (Lovich and Ennen, 2012). The observed increase in USSE and studies elucidating their environmental properties underscores the importance of understanding environmental interactions associated with solar energy development, especially at regional and global scales and how these impacts may reduce, augment, or interact with drivers of global environmental change.

Here, we provide a review of current literature spanning several disciplines on the environmental impacts of USSE systems, including impacts on biodiversity, water use and consumption, soils, human health, and land-use and land-cover change, and land-atmosphere interactions, including the potential for USSE systems to mitigate climate change. Drawing from this review, we show (1) mechanisms to integrate USSE environmental co-benefit opportunities, (2) permitting and regulatory issues related to USSE, and (3) highlight key research needs to better understand the nexus between USSE and the environment.

2. Environmental impacts of utility-scale solar energy systems

Environmental impacts (see Fig. 2 for complete list) of USSE systems may occur at differential rates and magnitudes throughout the lifespan (i.e., construction, operation, and decommission) of a USSE power plant, which varies between 25 and 40 years. Drawing from experiments evaluating direct and indirect impacts of USSE systems and studies evaluating processes that are comparable in likeness to USSE activities, we discuss impacts related to biodiversity, water use and consumption, soils and dust, human health and air quality, transmission corridors, and land-use and land-cover change.



Fig. 2. Solar energy effectors for utility-scale solar energy technologies (ALL USSE), including concentrating solar power (USSE CSP) and photovoltaics (USSE PV), and for both utility-scale and distributed schemes (distributed and USSE). Effectors have one or more potential effects on the environment with one or more potential ecological responses. Photo credit: RR Hernandez.

2.1. Biodiversity

In general, distributed and USSE installations integrated into the existing built environment (e.g., roof-top PVs) will likely have negligible direct effects that adversely impact biodiversity [25]. Studies quantifying the direct impact of USSE on biodiversity in otherwise undisturbed habitats are few ([75,107]; Lovich and Ennen [70]; Cameron et al. [142]; [81]); however, these combined with other disturbance-related studies provide insight into how USSE power plants may impact biodiversity losses locally within the USSE footprint (i.e., all areas directly transformed or impacted by an installation during its life cycle), where the aboveground vegetation is cleared and soils typically graded, and regionally by landscape fragmentation that create barriers to the movement of species and their genes [101].

2.1.1. Proximate impacts on biodiversity

As USSE sites typically remove vegetation and soils are graded, locating USSE on land where biodiversity impacts are relatively small has been shown to be a feasible strategy for meeting both renewable energy and conservation goals ([39]; Cameron et al., 2012). For example, Fluri [39] showed that the strategic siting of USSE infrastructure in South Africa could create a nominal capacity of 548 gigawatts (GW) of CSP while avoiding all habitats supporting endangered or vulnerable vegetation. After a site has been chosen, solar energy projects may employ repatriation and translocation programs—when individuals of key native species are collected from impacted habitat, moved, and released into reserve areas previously inhabited and not previously inhabited by the species, respectively. The low success rates of repatriation and translocation programs (e.g., < 20%; [29,38]) have rendered them an expedient when all other mitigation options are unavailable

[19]. These and other 'post-siting' compliance measures to minimize biodiversity impacts (e.g., land acquisition, road fencing) are expensive, usually target a single species, and do not guarantee benefits to the organisms they are designed to support [70]. The repatriation and translocation of organisms is complicated by climate change, which requires taking into account the dynamic character of species' distributions for both assessing biodiversity impacts of single and collective USSE projects and for determining suitable habitat for repatriation or translocation. Additionally, some species, such as birds, cannot be moved and may be attracted to certain USSE infrastructural elements. McCrary [75] found mortality rates, compared to other anthropogenic impacts on birds, low for USSE systems, and Hernandez (unpublished data) observed nests on the backside of PV module infrastructure (Fig. 3). Soil disturbances and roads can further increase mortality rates of organisms or serve as conduits for exotic invasions, which can competitively extirpate native species [42,140].

2.1.2. Indirect and regional effects on biodiversity

Less proximate impacts on biodiversity may also occur indirectly within the USSE footprint (i.e., all areas directly transformed or impacted by an installation during its life cycle), beyond the footprint, and regionally by landscape fragmentation that create barriers to the movement of species and their genes [101]. In the southwest US, anthropogenic sources of oxidized and reduced nitrogen may be elevated due to emissions from increased vehicle activity or the use of CSP auxiliary natural gas burners, promoting invasions by exotic annual grasses that increase fire frequencies [5,94]. Additionally, environmental toxicants required for USSE operation (e.g., dust suppressants, rust inhibitors, antifreeze agents) and herbicides may have insalubrious, and potentially



Fig. 3. ((a) and (b)) McCrary et al. [76] documented the death of 70 birds (26 species) over 40 weeks, including effects of scavenger bias, resulting from the operation of a 10 MW concentrating solar thermal power plant (Solar One, Mojave Desert, CA; 1). This equates to a mortality rate of 1.9–2.2 individual birds per week. Two causes of death were identified: most prevalent was collision with site infrastructure (81%), particularly with heliostats, and to a lesser degree, burning when heliostats were oriented towards standby points (19%), especially for aerial foraging species. Additionally, they found that the large, man-made evaporation pools increased the number of species five-fold in the local area. Impacts on bird mortality may increase non-linearly with increasing USSE capacity. (c) Hernandez (unpublished data) observed several bird nests on the backside of PV module infrastructure at a USSE power plant in the Central Valley of California (San Joaquin Irrigation District PV Plant, Valley Home, CA, USA). Photo credit: Madison Hoffacker.

long-term, consequences on both local and regional biodiversity [1,70].

Habitat loss and fragmentation are recognized as the leading threats to biological diversity [35,136]. The land-use efficiency, footprint, and infrastructural design of individual USSE installations vary significantly [51] and therefore individual power plants affect landscapes in unique ways. Utility-scale solar energy infrastructure may fragment habitat and serve as linear barriers to the movement patterns of certain wildlife species. Whereas highly mobile or wide-ranging species may be able to circumvent USSE infrastructure, some features may be insurmountable to less mobile species, increasing the risk of gene flow disruption between populations. Decisions regarding the placement of USSE infrastructure likely take into account current species distributions, but climate change may alter future distributions and wildlife dispersal corridors [52]. Determining species' responses to novel climate shifts is inherently uncertain and scale dependent, but nevertheless tools exist to model such distributional shifts (e.g., [11]).

2.2. Water use and consumption

Energy and water are interdependent [129]. USSE technologies vary in their water withdrawal (total volume removed from a water source) and consumption (volume of withdrawn water not returned to the source) rates, creating unique tradeoffs. Photovoltaic energy systems have low rates (0.02 m³/megawatt hours [MW h]), consuming water only for panel washing and dust suppression in places where dust deposition is problematic [41]. Currently, washing panels or mirrors with water is the most common strategy for dust removal in large solar installations [73]. A recent analysis of water use by USSE installations in the southwestern US indicates that water for dust control is a major component (60-99%) of total water consumption in both dry cooled CSP and PV installations (Ravi et al., in review), whereas no information is available for other regions where USSE installations are expected to increase in the near future. Even though other cleaning technologies (e.g., electrostatic) exist, most are not yet commercially available, and the impacts of conventional technologies (e.g., cleaning using chemical sprays) on the environment are not completely understood [50,65].

In the case of CSP, the water consumption depends on the cooling system adopted-wet cooling, dry cooling, or a combination of the two (hybrid cooling) [108]. Concentrating solar power consumes vast quantities of water in wet cooling (i.e., 3.07 m³/ MW h), which is greater than coal and natural gas consumption combined [18,108]. The use of dry cooling, which reduces water consumption by 90% to 95%, is a viable option in water-limited ecosystems. Historically, reduced efficiency and higher startup costs have been an economic deterrent to dry cooling [108]. However, Holbert and Haverkamp [53] found that dry cooling startup costs are offset by 87-227% over a 20-year time interval, owing to cost savings in water use and consumption. Global regions already water stressed, such as many arid and semiarid habitats, may be vulnerable to changes in local hydrology [133], such as those incurred by USSE activities. In water-constrained areas, the deployment of USSE projects may also conflict with the use of water by other human activities (e.g., domestic use, agriculture), at least at the local scale [18,108]. Ultimately, the choice of dry or wet cooling in a CSP plant can lead to highly divergent hydrological impacts for USSE facilities.

2.3. Soil erosion, aeolian sediment transport, and feedbacks to energetic efficiency

Aridlands, where USSE facilities are often concentrated [51], are also areas where high winds result in aeolian transport of sand and dust. Some of that sediment transport is controlled by desert vegetation, but the installation of USSE infrastructure requires extensive landscape modification. Such modifications include vegetation removal, land grading, soil compaction, and the construction of access roads; activities that increase soil loss by wind and water [14,37].

The major agents of natural degradation are soil particulates (silt and clay), as well other particulate pollutants such as industrial carbon (C) [98,99]. Given its variable composition, dust emissions have a broad spectrum of impacts ranging from human health, global biogeochemical cycle, hydrologic cycle, climate, and desertification (e.g., [46,87,88,95]). In one semiarid ecosystem, Li et al. [68] recorded a 25% loss of total organic C and total nitrogen in the top 5 cm of soil following devegetation. Studies conducted in southeast Spain have found that 15 years after the removal of vegetation in a semiarid site, the total organic C remained \sim 30% lower compared to undisturbed areas, which also showed greater microbial biomass and activity levels [12]. Decreases in the availability of resources resulting from soil erosion can result in biodiversity losses and impede the recovery of vegetation [4,47,104]. Moreover, reduction in vegetative cover are strongly linked to increased dust production and even modest reductions in grass or shrub cover have been shown to dramatically increase dust flux [68,80].

Dust deposition can incur a negative feedback to solar energetic performance by decreasing the amount of solar radiation absorbed by PV cells [45]. Even suspended dust in the near surface atmosphere decreases the amount of solar radiation reaching the panel surface [45]. Deposition on solar panels or mirrors is site-specific and modulated by several factors, including soil parent material, microclimate, and frequency and intensity of dust events, but several studies have demonstrated energy production losses exceeding 20% [33,34,45,85]. Nonetheless, long-term field studies to quantify dust impacts on solar energy production are limited. For example, Ibrahim [55] experimentally demonstrated that solar modules installed in the Egyptian desert that have been exposed to dust for a period of one year showed an energy reduction of about 35%. Kimber et al. [61] investigated the effects of deposition on energy production for large grid-connected systems in the US and developed a modeling framework for predicting soiling losses. These authors found that for North American deserts, PV system efficiency declines by an average of 0.3% per day during periods without rain [61]. The National Renewable Energy Laboratory analyzed 24 PV systems throughout the US and calculated a typical derate factor (percentage decrease in power output) due to dust deposition of 0.95% [74]. In many desert ecosystems dust deposition rates are sufficiently high as to adversely impact solar power generation [67,98].

Challenges to manage dust loads may be amplified by increases in dust production related to land-use change, climate change (e. g., increases in aridity) or disturbance to biological soil crusts (e.g., fires, grazing, agriculture, energy exploration/development; [13]; Field et al.[37]; [95]). Even if USSE-related dust production is kept at bay, climate models predict an increase in aridity and recurrent droughts in dryland regions of the world (e.g., [109]), which may enhance soil erosion by wind and subsequent dust emissions. As these emissions can compromise the success of a USSE installation itself when they reduce its potential to generate electricity, effective dust management is advantageous to ensure efficient power generation while minimizing deleterious environmental and health impacts.

2.4. Human health and air quality

As with the development of any large-scale industrial facility, the construction of USSE power plants can pose hazards to air quality, the health of plant employees, and the public [122]. Such hazards include the release of soil-borne pathogens [91], increases
in air particulate matter (including PM_{2.5}, [46,100]), decreases in visibility for drivers on nearby roads, and the contamination of water reservoirs [70]. For example, disturbance of soils in drylands of North and South America, which are places targeted for USSE, aids transmission of *Coccidioides immitis*, a fungus causing Valley Fever in humans [10]. In areas where surface soil contains traces of chemical and radioactive contaminants (e.g., radionucleotides, agrochemical residues), increased aeolian transport resulting from soil disturbances increases contaminant concentrations in airborne dust [95].

During the decommissioning phase, PV cells can be recycled to prevent environmental contamination due to toxic materials contained within the cell, including cadmium, arsenic, and silica dust [144,145]. In the case of inappropriate handling or damaged cells, these industrial wastes can become exposed, which can be hazardous to the public and environment [144]. For example, inhalation of silica dust over long periods of time can lead to silicosis, a disease that causes scar tissue in the lungs and respiratory decline. In severe cases, it can be fatal [148]. In addition, chemical spills of materials such as dust suppressants, coolant liquids, heat transfer fluids, and herbicides can pollute surface ground water and deep water reservoirs [70,126].

On rooftops, solar PV panels have also been shown to reduce roof heat flux, conferring energy savings and increases in human comfort from cooling [31]. In that vein, the insulating properties of rooftop solar PV may serve co-beneficially to mitigate heat wave-related illness and mortality [131]. The fire hazard potential of both rooftop and ground-mounted USSE infrastructural materials (e.g., phosphine, diborane, cadmium), and their proper disposal, presents an additional challenge to minimizing the environmental impacts of USSE facilities [43]. This is particularly true in light of the dramatic increases in the frequency and intensity of wildland fires in arid and semiarid regions of the world as a result of climate change ([134], [15]).

2.5. Ecological impacts of transmission lines and corridors

Centralized USSE operations require transmission of generated electricity to population centers where consumption occurs. This necessitates the development of expanded transmission infrastructure, the availability of which has not kept up with demand [21,30]. As of 2007, over 333 kilometers (km; 207,000 miles) of high-voltage transmission lines (> 230 kV) were constructed in the US electricity transmission system [78] and this number is expected to rise as transmission infrastructure expands to growing population centers and connects with new renewable energy sources. As the potential for solar resources in other countries are being discovered so too are the plans to harness that energy and transmit it across international borders [27]; such plans are being actively developed to transmit energy from Middle Eastern and North African regions to European countries (requiring over 78,000 km of transmission lines by project completion in 2050; [124]). Although essential for transporting energy, the construction of such extensive transmission line networks has both long- and short-term ecological effects, including displacement of wildlife, removal of vegetative cover, and degradation of habitat quality [8], the degree of which may depend on landuse history, topography, and physical features of the sites, as well as productivity and vegetation types. For example, Lathrop and Archbold [66] estimated that biomass recovery at Mojave Desert sites disturbed for transmission line tower construction might take 100 years whereas recovery of disturbed transects directly beneath the transmission lines might take 20 years.

Fragmentation created by transmission corridors in forested habitats may displace permanent resident species and disrupt regular dispersal patterns [7,97,107]. While wide transmission corridors may facilitate new habitat types resulting in higher diversity or the introduction of new communities [7,58,81], they also experience greater edge effects. Sites at different stages of vegetative recovery have exhibited distinct recolonization patterns, with lower native and higher introduced species diversity at primary successional stages and an increase in native diversity at mid- and late-successional stages [20]. The ecological effects of transmission lines and corridors have proven to be varied and depend on a multitude factors, making appropriate siting crucial.

2.6. Land-use and land-cover change

2.6.1. Land-use dynamics of energy systems

Land and energy are inextricably linked [25]. When energy systems are developed, biophysical characteristics of the land may change (land-cover change, m²), the human use or intent applied to the land may change (land-use change, m²), and the land may be used for a specific duration of time (land occupation, $m^2 x yr$; [40,64]). Terrestrial ecosystems vary in their net primary productivity (rate of accumulation of organic C in plants), from tropical evergreen forests (1 to $3.2 \text{ kg/m}^2/\text{yr}^1$) to deserts (up to 0.6 kg/m²/yr¹), and in their ability to sequester C in soil [105]. When land-use and land-cover change occurs - for example, when vegetation or biological soil crust is cleared or when soils are disturbed - above- and below-ground pools may release C back into the atmosphere as carbon dioxide (CO₂; [26]). Hence, developing energy-related infrastructure on previously disturbed or contaminated land may result in lower net C losses than infrastructure erected on undisturbed lands [26,62,89].

Other key land-use characteristics of energy include land-use efficiency and reversibility. Land-use efficiency (e.g., watts per square meter, $/m^2$) defines the installation's power relative to its footprint; the "footprint" being the land area transformed or impacted by the installation throughout the energy system's complete conversion chain [40,51]. As energy systems may impact land through materials exploration, materials extraction and acquisition, processing, manufacture, construction, production, operation and maintenance, refinement, distribution, decommissioning, and disposal, energy footprints can become incrementally high [40]. Some of this land may be utilized for energy in such a way that returning to a pre-disturbed state necessitates energy input or time, or both, whereas other uses are so dramatic that incurred changes are irreversible [79]. Irreversibility cost assessments can be employed to monetize restoration and irreversibility; a function of the original land cover type and properties of the land-use and land-cover change incurred [138,141].

2.6.2. Land-use of utility-scale solar energy

Likely due to its nascent expansion [9], studies evaluating landuse characteristics of USSE systems are relatively recent, few, and focused geographically. Hsu et al. [54] described the complete energy conversion chain of PV USSE systems, which necessitates materials acquisition, infrastructure and module manufacture, construction, operation and maintenance, material disposal, and decommissioning. The complete energy conversion chain of CSP is similar, but complicated by auxiliary natural gas and electricity consumption [16]. Fthenakis and Kim [40] stated that indirect land impacts related to materials (e.g., modules and balance-of-system) and energy for PV is negligible – between 22.5 and 25.9 m²/GWh¹ – compared to direct land use. Data on land occupation are rare; however, the lifetime of USSE infrastructure, including modules, is typically assumed to be between 30 and 60 years [40].

Studies targeting the direct impact of USSE on land-cover change are few [51,143,149]. Furthermore, factors controlling sequestration of C in soils, particularly in aridlands, are not well understood [72,106], complicating the ability to quantify C losses

from USSE-related land-cover changes in the ecosystems where they are most likely to occur [51]. In western US, 97,000 ha (ha) of federal lands were approved or have pending leases for the development of USSE while over 18 million ha of land in this region were identified as suitable for USSE development [135]. In the same region, Pocewicz et al. [92] found that USSE development may impact shrublands greater than any other ecosystem type, with estimates of conversion ranging from 0.60 to 19.9 million ha, and especially for North American shrubland ecosystems. Smaller leases on grasslands and wetland ecosystems were approved, and therefore may also be impacted but to a lesser extent. Hernandez et al. [51] found that USSE (> 20 MW: planned, under construction, and operating) in California may impact approximately 86,000 ha; concentrated in the agricultural center of the state (the Central Valley) and the arid, interior of southern California. In the Mojave Desert, over 220,000 ha of Bureau of Land

Management land has pending applications for USSE development. If constructed, creosote-white bursage desert scrub, the Mojave mid-elevation mixed desert scrub, and over 10,000 ha of desert tortoise habitat would be converted (Cameron et al., 2012).

Land-use efficiency of USSE is determined by the architectural and infrastructural design and capacity of the power plant but indirectly influenced by a project's geography, capacity factor, technology type, and developer priorities. Hernandez et al. [51] found the nominal LUE efficiency of USSE in California to be 35 W/m² where a capacity factor of 13% and 33% would generate a realized LUE of approximately 4.6 and 11.2 W m⁻² for PV and CSP, respectively. Fthenakis and Kim [40] used a nominal packing factor (based on a single footprint specification) to determine the land use efficiency of PV and their results, ranging between 229 and 552 m²/GWh¹, were comparable to [51].



Fig. 4. Impact of temperature on global photovoltaic solar energy potential. In general, photovoltaic (PV) solar energy output increases with increasing irradiance but decreases with increasing ambient temperatures. These maps show (a) the global potential of PV energy (kWh/kW PV) for a crystalline silicon (c-Si) module, the most widely employed in the current market, without considering temperature effect, and (b) the global potential of PV energy (kWh/kW pV) for a crystalline silicon (c-Si) module including temperature effect. High irradiance coupled with low temperatures render the Himalayas, the Southern Andes, and Antarctica high in potential, > 1800 kWh/kW. High temperatures reduce PV solar energy potential in places including southwest United States deserts, northern Africa, and northern Australia. Both (a) and (b) include impacts from cloud cover (maps reprinted from Kawajiri et al. [59]). Not well understood is how changes in land surface temperatures from climate change, especially heat waves, will impact future global PV energy output.

To date, no study has evaluated how USSE land use efficiency (W/m^2) and layout – the infrastructural and architectural design of a USSE power plant – may impact ecosystem recovery or reversibility. However, the natural recovery of aridlands and other ecosystems after disturbance can be exceptionally slow. For example, leases for USSE development on public land in southern California deserts are typically at the decadal-scale, while complete ecosystem recovery from USSE activities there may require over 3000 years [69].

2.6.3. Comparing land-use across all energy systems

Land-use and land-cover change impacts from USSE are relatively small when compared to other energy systems [146]. In five ecosystems in western United States, Copeland et al. [21] found that actively producing oil and gas leases impact 20.7 million ha of land (4.5% of each terrestrial ecosystem evaluated) but the total potential for lands to be disturbed exceeded 50 million ha (11.1%). In contrast, potential land-cover change impacts from USSE development was < 1% of all ecosystems combined. In terms of land-use efficiency, PV energy systems generate the greatest amount of power per area among renewables, including wind, hydroelectric, and biomass [40,51]. Notably, ground-mounted PV installations have a higher land use efficiency (when incorporating both direct and indirect effects [e.g., resource extraction]) than surface coal mining, which is how 70% of all coal in the United States is extracted [40]. These results underscore the environmental potential solar energy development may have on landcover and land-use change impacts, relative to carbon-intensive energy and other renewable energy sources.

3. Utility-scale solar energy, land-atmosphere interactions, and climate change

Assessments of USSE impacts on land-atmosphere interactions, especially those with climate feedbacks, are increasing in number. While there are two principal types of solar technologies (i.e., PV and CSP) recent research on land-atmosphere attributes of USSE have focused largely on PV [31,76,121], given their relatively larger deployment globally (65 GW of PV versus 1.5 GW of CSP; International Energy Agency, 2013).

3.1. Utility-scale solar energy and albedo

The radiative balance at the land-atmosphere interface can shift when the albedo of a PV solar installation differs from the former background albedo. Given their absorptivity, PV panels have an *effective albedo* (averaging 0.18–0.23), a function of its inherent reflectivity *and* solar conversion efficiency [83]. Using a fully coupled regional climate model, Millstein and Menon [76] showed that a 1 TW PV USSE installation (at 11% efficiency) in the Mojave Desert would decrease desert surface albedo, thereby increasing temperatures up to 0.4 °C. In cities, albedos average 0.15 to 0.22 and consequently installed PV arrays can potentially increase albedo for a cooling effect. Taha [121] modeled a high-density deployment of roof-mounted PV panels (i.e., a distributed scheme) in the Los Angeles Basin and found no adverse impacts on air temperature or the urban heat island and predicted up to 0.2 °C decrease in air temperatures under higher efficiency panels.

Although local- and regional-scale land-atmosphere impacts are important to consider, particularly in environmentally sensitive ecosystems, the global-scale substitution of carbon-intensive energy for solar energy cannot be understated. Nemet [84] found that when PV is substituted for fossil fuels at the global scale, the reduced radiative forcing is 30 times larger than the increase in radiative forcing from reduced albedo. Further underscoring their potential, as PV technologies increase in efficiency over time so too will their effective albedo.

3.2. Utility-scale solar energy and surface roughness

Changes in radiative balance can also occur due to changes in surface roughness. In the built environment, changes in roughness length (mean horizontal wind speed near the ground) is likely to be negligible given that PV panels are typically roof-embedded or resting slightly above the roof. In natural environments, specifically deserts, roughness length typically increases given the tall infrastructure of USSE plants. Indeed, Millstein and Menon [76] found that the solar arrays influenced local and regional wind dynamics up to 300 km away.

3.3. Utility-scale solar energy and climate change

Complicating our understanding of land-atmosphere interactions with USSE is climate change. Arguably one of the biggest challenges to the deployment of these facilities will be anticipating reductions in water resources in areas that are already waterstressed [80]. In 2009, all operating CSP facilities in the US were wet cooled [18]. Reductions in water availability will have consequences for both USSE facility operation and dust deposition on mirrors or panels (utility-scale and distributed). In places where more frequent, intense storms may occur, managing operational and ecological impacts of erosion will be an exigent concern [93].

Another part of the challenge lies in the shifting of climate envelopes and incidence of extreme weather. Photovoltaic technologies use both direct and diffuse light to convert energy from the sun into electricity, but high ambient temperatures reduce panel efficiency almost linearly (Fig. 4). Consequently, cool places with high irradiance are the best locations for capturing solar with PV [59]. Currently, combined uncertainty (i.e., standard deviation) of PV yield is roughly 8% during the PV system lifetime [123]. Uncertainty may increase if climate change projections are taken into consideration. Concentrating solar power efficiency increases linearly with increasing ambient temperature and proportionally to direct light and therefore changes in climate also impact CSP output. Indeed, site-specific favorability for PV and CSP are projected to vary over time under different climate change scenarios; for example, CSP may increase up to 10% in Europe under the Intergovernmental Panel on Climate Change A1B scenario [22].

The substitution of carbon-intensive energy sources for solar energy has enormous potential to mitigate climate change by directly reducing greenhouse gas emissions [150]. In the US, Zhai et al. [137] modeled a reduction of CO₂ emissions from 6.5% and up to 18.8%, if PV were to comprise 10% of the grid. Recently, a suite of studies harmonized (i.e., standardized and performed a meta-analysis of data from a large number of studies) current life cycle analysis literature to evaluate life cycle greenhouse gas emissions from various solar energy technologies, including upstream (e.g., resource and raw material acquisition, product manufacturing), operational, and downstream (e.g., selling and distribution of product, decommissioning and disposal) processes (Table 1). Photovoltaic solar technologies ranged from 14 to 45 g CO₂-eq kWh⁻¹ [54,60], where CO₂-eq is the carbon dioxide equivalent, a measure for quantifying the climateforcing strength of greenhouse gases by normalizing for the amount equivalent to CO₂. Concentrating solar power ranged from 26 to 38 g CO₂-eq kWh⁻¹, for parabolic trough and power tower, respectively [16]. These emission values were a magnitude of order less than greenhouse gas emissions from coal, gas, or oil Varun and Prakash [132].

4. Utility-scale solar energy co-benefit opportunities

Solar energy is one of the most promising alternatives to fossil fuels, especially as an attractive climate change mitigation option [150]. Clear-cut advantages of solar energy such as utilizing the sun as a renewable source of electrons and heat, and the reduction of air and water pollution by fossil fuels, can be complemented by additional environmental co-benefit opportunities [118,127]. Opportunities include, but are not limited to the (1) utilization of degraded lands, (2) co-location of solar panels with agriculture, (3) hybrid power systems, (4) floatovoltaics, and (5) novel panel

Table 1

Comparison of life cycle emissions for solar (grams of carbon dioxide equivalent per kWh) and conventional, carbon-intensive (grams of carbon dioxide per kWh) energy generation.

Conventional systems		Renewable systems ^a	
System	g-CO ₂ /kWh	System	g-CO ₂ -eq/kWh
Coal ^c	975	Concentrating solar power ^b	
Gas ^c	608	Parabolic trough ^d	26
Oil ^c	742	Power tower ^d	38
Nuclear ^c	24	Photovoltaics	
		Crystalline-silicon ^e	45
		Thin-film amorphous silicon ^f	21
		Thin-film cadmium telluride ^f	14
		Copper indium gallium	27
		Diselenide ^f	

^a Median values, assuming life span of 30 years.

^b Excludes auxiliary natural gas combustion and electricity consumption.

^c Varun and Prakash [132].

^d [16].

° [55].

^f [61].

architecture and design that serves to concomitantly conserve water and land resources (Fig. 5).

4.1. Utilization of degraded lands

Degraded lands comprise approximately one-fourth of all land on Earth [63]. The development of "brightfields" on degraded lands [153]—including brownfields, landfills, mine sites, and other types of contaminated lands—confer several environmental cobenefits, including obviating additional land-use or land-cover change. For example, 12,000 ha of salt-contaminated agricultural land in the San Joaquin Valley (California, USA; Fig. 5a) are planned for conversion into a 2.4 GW solar power plant (www.westlands solarpark.com). Employing water-efficient PV solar technology, the park's location stands to divert large amounts of water to active, water-stressed agricultural sites nearby; hence garnering broad support from various interest groups.

Utilizing degraded land can offer additional environmental benefits when reclamation of these lands is prioritized. On-site landscaping using native plants and soil amendments can add to ecosystem service provisioning (e.g., soil stability, C sequestration) without the use of additional water and fertilizer inputs. A 550 MW PV power plant spread over 1400 ha of private, nonprime agricultural land in San Luis Obispo (California, USA) will use economical, thin-film PV cells that operate efficiently in the relatively low light conditions characterizing this area (Fig. 5b). This mesic site reduces water consumption for panel cleaning and is also the location of an effort to re-establish the native grasslands that once dominated [6]. Under and around the panels, sheep will graze the taller grasses every two months to prevent obstruction of panels.



Fig. 5. Environmental co-benefit opportunities of utility-scale photovoltaic solar energy: ((a) and (b)) Utilization of degraded lands, (c) Co-locating solar energy and agriculture, and (d) Photo credits: Westlands Solar Park, Optisolar, Bert Bostelmann/Getty Images, [111].

4.2. Co-location with agriculture

Environmental co-benefits can occur when existing agricultural land is co-located with solar. With potential minimal risks to food security, co-location schemes can reduce land deficits for energy, food, and fiber production [25]. A preliminary study by Dahlin et al. [24] found that US electricity production could be met by utilizing approximately 11% of of US cropped land. The coexistence of grazing habitat for livestock, such as sheep and goats, may curtail the need for vegetation removal and maintenance, or both, and limit erosion, while supporting both energy and food/ fiber production (Fig. 5c). Yet such sites need not be agricultural land sensu stricto. For example, Japan announced a co-location plan to diversify their grid by integrating 30 MW of PV in the unoccupied spaces adjacent to and on top of livestock barns, agricultural distribution centers, and parking lots [84]. Where land for agriculture is limited in aridlands, coupled USSE infrastructure and biofuel cultivation has been suggested as a strategy to minimize the socioeconomic and environmental issues resulting from biofuel cultivation in agricultural lands [96].

4.3. Hybrid power systems

The United States Department of Energy [130] estimates that more than one million ha of land would be required in the US to achieve the USSE 2030 SunShot scenario of 642 TW h. In the US and other countries where land is limited, co-location with other energy systems (e.g., wind, biomass, conventional thermal or natural gas power plants) may prove advantageous [115,120]. Hybridization and optimization methodologies for co-locating solar and wind power are currently being implemented in diverse geographic regions [115,120]: Charanka village in India provides an example of a wind-solar colocation region with 0.5 GW of combined wind and solar energy capacity [113]: a conventional fossil fuel 44 MW coal plant in Cameo, Colorado has been co-located with a 4 MW USSE trough for preheating feed water (IEA, [56]); and, Ordos City, Mongolia is co-locating the largest USSE facility in the world at a capacity of 2 GW PV alongside nearby wind and coal facilities [28]. Uncovering novel synergies between solar and other energy sources will continue to require diverse project implementations and industry-relevant field experiments, along with modeling studies on the energetic advantages and trade-offs of co-locating USSE with other facilities.

4.4. Floatovoltaics

A unique water-based design element is the use of "floatovoltaics". Innovative designs for reservoir-based PV modules – such as polyethylene floating arrays that utilize elastic fasteners to adapt to varying water levels – are beginning to proliferate globally [36]. Such water-borne PV systems are also being deployed in diverse water features including the muddy waters of a wastewater treatment site (Richmond, CA; NRG [86]), a pond where electricity is generated for the adjacent vineyard located in the Napa Valley, California [116,117], and an irrigation canal in Gujarat, India (Fig. 5d; [112]). This 750-m stretch of irrigation canal in India has been covered by 1 MW of PV panels, thereby reducing the need for land transformation and conserving roughly 9-million liters of water per year owing to reduced evaporation.

4.5. Photovoltaics in design and architecture

Integrating PVs into infrastructure and architectural elements can create numerous co-benefits, first by obviating the need for additional land-use or land-cover change. One study [103] found PV noise barriers to be economically profitable when ecological benefits were included in the cost benefit analysis. Photovoltaic noise barriers originated in Switzerland in 1989, and today over 9 MW of PV noise barriers have been erected alongside rail and highway systems in Europe, Australia, and China.

In addition to ground-mounted panels, PV installation on rooftops has enhanced solar energy production as well [118]. Government incentives known as feed-in-tariffs used in 48 countries encourage the use and growth of renewable energy in both commercial and residential sectors, including PV deployment on rooftops as it has the potential to contribute energy on a utility scale. For example, the Canadian province of Ontario has begun a large-scale PV integration into infrastructure since 2009 and it is estimated that its total area of viable rooftops can produce up to 30 GW of solar energy as compared to 90 GW from ground-mounted panels in utility-scale solar plants [118]. Similar to Ontario, USSE companies in Amsterdam are capitalizing on PV integration into the built-environment through rooftop installations on residential homes [155].

While land and rooftop-based PV installations are typically connected to a grid system, PV panels can also be used to generate power for off-grid domestic and non-domestic environments [156]. This setup offers a reliable source of energy for communities and villages in remote locations that lack access to a central utility power-line. Off-grid PV systems are vital to rural communities by providing electricity for basic needs and have a particularly large impact in developing countries such as India, Indonesia, Sri Lanka, and Kenya, where only a small percent of rural communities are grid-connected [147,154].

5. Minimizing adverse impacts of solar energy: Permitting and regulatory implications

Permitting and regulatory constraints for USSE vary with land ownership (e.g., public versus private land), ecological characteristics (e.g., undisturbed versus previously degraded, critical habitat for rare species) and cultural significance [152]. From the perspective of the public, the benefits of renewable energy development ought to be weighed against the loss of ecological function, loss of public access, and the loss of irreplaceable cultural resources [126,151]. From a perspective of energy development alone, possible delays from permitting requirements and regulatory reviews may be seen as having negative effects on financial returns.

Like other forms of renewable energy, each USSE project will ineluctably have its own unique set of social, cultural, environmental, technical, and political characteristics [152]. Project implementation may be further complicated by wavering market prices for land acquisition and materials in addition to environmental regulations and legislation that may vary across county, state, and national boundaries. Collectively, the wide variation in requirements to develop USSE marks a discrepancy in solar energy implementation amongst different regions.

In general, policies underlying the development of energy systems in all countries have yet to address all key impacts and externalities. Consequently, all the actors and entities involved in a single enterprise may be working independently to minimize adverse impacts in ways not regulated or incentivized by policy. Ways to minimize impacts include: (1) understanding the environmental implications of siting decisions using adequate inventories of species and processes Tsoutsos et al. [126], (2) monetizing the actual value of natural capital and ecosystem services attributed to a parcel of land, (3) siting USSE systems on land that maximizes energetic output and minimizes economic and environmental costs Tsoutsos et al. [126] [19]), (4) having individuals and entities involved with long-term commitments to the project, and (5) requiring developers to internalize costs. In addition, standardizing the rigidity and quality of regulations for all USSE projects may serve to streamline USSE development.

6. Solar energy and the environment: Future research

Below, we suggest a list of research questions to springboard future studies aimed at expanding our understanding of the interaction between USSE and the environment. We have developed these questions to bridge empirical gaps that were identified as a result of this review. Where applicable, we have provided citations for studies that have addressed each question, in part, or existing studies that prompted our proposed research questions. Gaps in the literature where empirical research is lacking are indicated by the absence of citations.

6.1. Research questions addressing environmental impacts of utility-scale solar energy systems

Direct, indirect, and regional effects on biodiversity

- How do infrastructural design, module configuration, and shape of a USSE power plant affect biodiversity?
- To what degree are native species impacted by USSE power plants? ([75]; Lovich and Ennen, [70]) Are there certain taxa, life histories, or functional types that are more compatible with USSE than others?
- To what degree does USSE infrastructure serve as a corridor or impasse for the movement of species and their genes? Water use and consumption
- How much water is displaced from agricultural and domestic use for USSE construction and operation? [44] Soil erosion, aeolian sediment transport, and feedbacks to

energetic efficiency What is the relationship among USSE electrical generation

- What is the relationship among USSE electrical generation, location, and dust?
- Does vegetation beneath panels reduce dust deposition on modules?
- Human health and air quality
- What are best practices for use of dust suppressants, coolant liquids, heat transfer fluids, and herbicides at USSE facilities? (Lovich and Ennen,)[70].

Ecological impacts of transmission lines and corridors

- How can existing transmission infrastructure and corridors be maximized for USSE development? [39] Land-use and land-cover change
- What are the land-use and land-cover impacts of USSE globally and compared to other energy systems? [40,51,92]
- What is the relationship between land use efficiency and reversibility? For example, is it better to arrange modules as close together as possible or spread them out? [51]

6.2. Research questions addressing utility-scale solar energy, land-atmosphere interactions, and climate change

Utility-scale solar energy and albedo

• To what extent can the spatial arrangement and materials of USSE infrastructure be used to enhance cooling (e.g., in urban heat islands)? ([31]; Taha, *In press*)

Utility-scale solar energy and surface roughness

- How does USSE impact local and regional wind dynamics [76] Utility-scale solar energy and climate change
- How will climate change impact utility-scale solar energy? [22]
- What is the potential of USSE to mitigate climate change in various regions worldwide and globally [137]

6.3. Research questions addressing utility-scale solar energy co-benefit opportunities

Utilization of degraded lands

- To what extent are USSE power plants erected on degraded lands?
- Does USSE infrastructure (e.g., shading) and maintenance requirements (e.g., panel washing) increase soil C sequestration in degraded lands? Co-location with agriculture
- What are the environmental tradeoffs between allocating lands to USSE development versus agriculture?
- What are the socioeconomic consequences of USSE development in agricultural areas? How does USSE development impact local food security and employment opportunities?
- Can transpiration from vegetation/agriculture reduce solar panel temperature thereby increasing efficiency?
- When combining USSE systems and agriculture, what are the effects on crop yield? [24] Hybrid power systems
- What environmental and economic advantages and disadvantages lie in the co-location of solar energy with other energy technologies?
- How can solar hybrid energy systems be optimized? [115,120] Photovoltaics in design and architecture
- What is the technical potential of USSE as deployed in the built environment?
- What is the cost-benefit of roof-embedded and roof-top solar, including savings derived from reduced cooling needs? [31]
- What are the economic and environmental impacts of distributed/built environment solar schemes versus USSE in undeveloped lands? Is there an ideal portfolio ratio?

6.4. Research questions addressing permitting and regulatory implications

- How do environmental regulations and legislation impacting USSE development vary across county, state, and national boundaries?
- How effective are renewable energy policy measures in facilitating USSE growth? [118]

7. Conclusion

Utility-scale solar energy systems are on the rise worldwide, an expansion fueled by technological advances, policy changes, and the urgent need to reduce both our dependence on carbonintensive sources of energy and the emission of greenhouse gases to the atmosphere. Recently, a growing interest among scientists, solar energy developers, land managers, and policy makers to understand the environmental impacts – both beneficial and adverse – of USSE, from local to global scales, has engendered novel research and findings. This review synthesizes this body of knowledge, which conceptually spans numerous disciplines and crosses multiple interdisciplinary boundaries.

The disadvantageous environmental impacts of USSE have not heretofore been carefully evaluated nor weighted against the numerous environmental benefits – particularly in mitigating climate change – and co-benefits that solar energy systems offer. Indeed, several characteristics and development strategies of USSE systems have low environmental impacts relative to other energy systems, including other renewable energy technologies. Major challenges to the widespread deployment of USSE installations remain in technology, research, and policy. Overcoming such challenges, highlighted in the previous sections, will require multidisciplinary approaches, perspectives, and collaborations. This review serves to induce communication across relatively disparate disciplines but intentional and structured coordination will be required to further advance the state of knowledge and maximize the environmental benefits of solar energy systems at the utility-scale.

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Exhibit 52

Mother Jones

How the Government Put Tens of Thousands of People at Risk of a Deadly Disease

If it killed politicians instead of prisoners, this illness would be national enemy No. 1.

By David Ferry | Fri Jan. 30, 2015 6:00 AM EST

Social Title:

How the government put tens of thousands of people at risk of a deadly disease

Social Dek:

If it killed politicians instead of prisoners, this illness would be national enemy No. 1.

Sika Eteaki lay in bed, shaking uncontrollably. The pillow and sheets were soaked through with sweat, but now he couldn't get warm. It felt like there weren't enough blankets in all of Lancaster State Prison to keep him warm.

Just a few months earlier, Eteaki had turned himself in for illegal possession of a firearm. He'd been arrested with a gun while driving back from a camping trip. He and his family had used the pistol for target practice, for fun, but a spate of nonviolent priors from the decade before had prosecutors threatening to put Eteaki away for years. Since those early arrests, Eteaki had turned his life around. He now had four kids under five, a renewed faith in Mormonism, and steady work at a foundry. The prosecutor went easy, and after months of negotiation, Eteaki pleaded guilty to felony firearm possession and got eight months in Lancaster, on the outskirts of Los Angeles. In July 2010, Eteaki's wife, Milah, drove him to the Long Beach courthouse, outside LA, where he surrendered and entered the system.

A hulking if slightly overweight presence, Eteaki stood 5-foot-10 and weighed 245 pounds, with broad shoulders, tattoos, and close-cropped black hair. His family was from the Polynesian archipelago of Tonga, and he'd arrived at Lancaster a strong, healthy man. But a few months into his stay, he started getting headaches and running a fever. He'd landed a plum job in the prison's cafeteria and didn't want to risk losing it by calling in sick, so he suffered through what he figured was a particularly rough flu for a week. He stopped by the prison clinic and was given ibuprofen and

Eteaki lost more than 40 pounds. And still, no one seemed to know what was wrong with him.

told to drink more water. He didn't get better. He went back to the clinic and got more of the same. After a

few more days of delirium, Eteaki learned from another inmate how to get the docs' attention: "Tell them your chest hurts." The next day, he was admitted to the prison's hospital with a high fever and a diagnosis of pneumonia.

The prison hospital cell was cold concrete. Doctors set up intravenous drips and pumped him full of antibiotics. Eteaki asked what he was getting, but answers weren't forthcoming; they were making him better, they said. But his fever wouldn't recede. For days it hovered around 103, 104. He was drowsy and couldn't eat. He also couldn't write or receive letters in the medical wing, couldn't tell his wife where he was or why he'd been ignoring the letters he knew she sent daily.

After three weeks of isolation in the clinic, he heard chains outside his door. Guards came in and ordered him to change into an orange jumpsuit. They shackled his wrists and ankles, strapped a surgical mask over his nose and mouth, and transported him to a hospital in Lancaster. There, chained to a bed, he continued to deteriorate. Doctors came and went, performed tests, and cycled him through a series of drugs. He lost more than 40 pounds. And still, no one seemed to know what was wrong with him.

One night, as Eteaki drifted in and out of consciousness, someone came in and asked for his emergency contacts. "Holy shit," he thought, "they don't know what to do with me. They're just going to leave me here." He tried to sleep, but the chills and hacking cough and fear were too much. He cried and thought of his wife and children. He remembered the hymns he'd learned in church as a child. "I need thee, oh, I need thee," he sang.

For centuries, residents of California's Central Valley have fallen ill with a mysterious disease that seemed to come with the great swirls of dust that periodically swept across the landscape. The illness, which killed some of its victims and left others debilitated and frail, appeared to choose its prey at random.

Valley fever, we know today, is born of a microscopic fungus that <u>thrives in the valley's fertile soil</u> [1]. Unlike most other infectious diseases, it does not spread through person-to-person transmission, but rather through dust particles that make their way into our lungs. Each individual fungus is a spore, a single-celled organism capable of asexual reproduction. When kicked up by cars or backhoes or tractors, spores can float across a county in an afternoon. They thrive in the <u>dusty</u>, <u>dry swath of land</u> [2] that cuts from California to Texas, and billions of them are sent into the air with each subdivision we carve out from unclaimed expanses. Outside cities like Bakersfield or Fresno, you may inhale hundreds of these invisible fungal specks in a day. For most people, however, breathing in a few spores amounts to nothing—60 percent of people who inhale

the fungi feel no symptoms at all. Thirty to 35 percent develop illness—usually flulike symptoms. Most people never even know they encountered the fungus—and for that reason, experts believe that valley fever may be much more common than official reports suggest.



Map by Karen Minot

But in 5 to 10 percent of the people who inhale the spores, the illness develops into something much more serious. The fungus is unrelenting. The airways in your lungs are laid out like an upside-down tree, and the spores do not rest until they reach the outer branches. There, past your lungs' natural defenses, they settle at the terminus of your respiratory system, lodging themselves into the air sacs. The spores reproduce and grow

fat with hundreds of mini-spores until they burst, releasing hundreds of new spores. Every bit of tissue touched by one of these new spores becomes inflamed as the fungus cascades across your respiratory system.

If you're extremely unlucky, the fungus reaches your meninges—the membranes that envelop your brain and spinal cord. If you're particularly unlucky, you get what's known as disseminated valley fever: The fungus continues to spread out of your lungs and into your bloodstream. From there, it attacks any organ it can find, causing chronic pain, fever, and exhaustion. If you're extremely unlucky, the fungus reaches your meninges—the membranes that envelop your brain and spinal cord. The lining of your brain begins to swell and the pain becomes unbearable as the pressure inside your cranium spikes. The infection cuts off the blood supply to your brain, depriving cells of oxygen. Finally, as the meninges grow more inflamed, your swollen brain has nowhere to expand but out of the base of your skull, a process called cranial herniation.

And from there, death isn't far off.

No one knows why some people develop life-threatening bouts of valley fever and others don't. What is known is that for certain racial groups, the risk of contracting disseminated valley fever is much higher. For black men, it is as much as 14 times that of white men. Filipinos and Pacific Islanders like Eteaki are also thought to be highly susceptible, though there is not enough data to prove how much.

In California, the quirks of valley fever's pathology have collided with the state's habit of jailing a disproportionately large number of black and brown people [3]. For years, the California Department of Corrections and Rehabilitation housed many of these minority inmates in prisons scattered throughout the dusty, endemic areas of the Central Valley. Thousands fell ill and dozens died. The story of their suffering is one of incompetence and outright negligence—it's the story of how the state of California left thousands of its charges to suffer while under its care. If valley fever was endemic to the hills above Rodeo Drive or the boulevards of Palo Alto and struck down Caucasians with the ferocity it lays out African Americans, it would be the kind of public health emergency that sends Anderson Cooper into the field with a face mask. As it stands, valley fever remains, in the words of the Centers for Disease Control and Prevention, a "silent epidemic."

Valley fever is technically called *coccidioidomycosis* and shortened to "cocci" by those in the know. It's a poorly tracked disease, but to the best of anyone's knowledge, around 20,000 Americans report coming down with it each year, and an average of 170 die. Those figures are likely an underestimate; the CDC has not

released updated valley fever fatality statistics since 2008. But in an average year we can be sure that the disease kills more Americans than West Nile, hantavirus, rabies, and Ebola combined.

What's more, the <u>incidence of the disease has been rising</u> [4] —from 2,271 cases in 1998 to 22,641 in 2011. Whether the spike was because of new, more-thorough testing, a real rise in disease, or some combination of the two is unknown—and for equally poorly understood reasons, the number of cases has declined in the past few years. (There were 9,438 cases in 2013.) Nevertheless, it's a trend that experts believe will continue to climb as the combination of drought, intensive agriculture, and climate change turns more of the American Southwest to dust. Bursts of rain followed by long dry spells—a pattern familiar to Californians—may be ideal growing conditions for cocci spores, and as climate change ensures that more soil stays arid and parched, the disease will travel with greater ease on gusty days in the Central Valley.

National Valley Fever Cases

For unknown reasons, rates have declined since 2011, but numbers are still higher than they were in the '90s.



"Damn, what happened to you?" the inmate across from Eteaki's cell asked. When Eteaki had left his cell in Lancaster, four weeks earlier, he'd weighed 245. Now he was down to 205, gaunt, his face sunken. After a week in the hospital, his fever had finally broken, and doctors told him he had valley fever. Almost immediately, he'd been dressed, cuffed, and hauled back to Lancaster. He began to read the pile of mail that had stacked up in his absence, watching as his wife's correspondence grew more frantic with each unanswered letter.

That Sika Eteaki, a Tongan American from Long Beach, could end up with a little-known, oftenmisdiagnosed fungal disease in a Mojave Desert prison may seem like a quirk of circumstance and geography. But the seeds of Eteaki's illness were planted three decades ago, when the California Department of Corrections decided that the Central Valley area was an ideal spot to park a ballooning prison population. The department built prisons in cities like Avenal, Corcoran, and Coalinga—dusty places that scientists would later learn contained some of the highest rates of valley fever in the state. Eight prisons were built in areas public health officials now consider "hyperendemic." California was laying the groundwork for a public health catastrophe. For most long-term Central Valley residents, the disease is a fact of life. Researchers speculate that many people there develop immunity, possibly by inhaling small amounts of cocci spores. Most locals who catch cocci suffer flulike symptoms (or nothing at all) and won't get it again afterward. But California's prison population is mostly made up of people from outside the valley—sitting ducks. And, especially in recent years, there have been a lot of them. The Central Valley is where 16 of the state's 33 adult prisons are located. The inmate population for the state increased from roughly 25,000 in 1980 to 117,000 today. Before a federal order to reduce prison populations was handed down, the state had at least 40,000 more inmates than it had prison beds. The inmates lived like factory-farm cattle. Thousands slept in triple-decker bunk beds erected wherever space could be found. Tough-on-crime ordinances—particularly the "three strikes" law—also led to a huge influx of minority inmates. Today, African Americans make up just 6.6 percent of California's population, yet they represent a full 29 percent of its prison population.



Lancaster State Prison Photograph by Mark Murrmann

Beginning in 2005, cocci began tearing through the populations of several Central Valley prisons. The rate of infection inside a few of these prisons was at that time dozens of times higher than in neighboring towns. At one, where a large construction project had just been completed next door, inmates were 400 times more likely to contract cocci than the people living nearby. When Eteaki entered the system four years ago, he landed in a veritable hothouse for valley fever.

Since 2005, around 4,000 California inmates have developed valley fever, and 53 have died from it. For survivors, the infection does not go quietly; devastating symptoms can persist for years after an inmate leaves prison. What's more, fungal infections are famously hard to treat; unlike bacteria, fungal cells closely resemble human cells, meaning it's difficult to find drugs that will zap the fungus and leave the human ones intact. Anti-fungals are toxic to both the fungus and the host, often causing headaches, nausea, dizziness, and rashes in patients, along with less frequent but more frightening side effects like seizures and liver failure.

Valley fever, if not a death sentence, can still become a life sentence—a burden that will follow former inmates to their grave—and one that the state refuses to help pay for.

Doctors diagnosed California's first recorded case of valley fever in 1893, in a Central Valley field-worker from the Azores islands. An eminent pathologist from Johns Hopkins University theorized, incorrectly, that the attacking organism was a parasite similar to one commonly found in dogs, coccidia. The researchers named their mysterious organism *Coccidioides* ("resembling coccidia") *immitis* ("not mild"). The disease went on to baffle doctors for decades. During the Second World War, the Army built airstrips into the dry earth near Bakersfield, releasing spore-laden dust and sickening hundreds of US airmen. German POWs and interned Japanese Americans being held in Arizona also came down with valley fever at staggering rates. The Germans were relocated. The Japanese Americans, according to oral historian and medical anthropologist Gwenn Jensen, were not.

After the war, infection became more common among oilmen, construction workers, and others who spent their lives rooting around in the dust. In 1972, 17 out of 39 archaeology students developed the disease while excavating an ancient Native American site in Red Bluff, California, then thought to be miles north of the endemic zone. Later, centuries-old human remains discovered at the site were found to show evidence of valley fever.

And yet, despite its long history, valley fever is still not very well understood. Medical professionals in the affected areas call valley fever an "orphan disease." Rarely does the ailment attract attention outside of the hardest-hit parts of California and Arizona—and research dollars are hard to come by. Though some progress has been made on a vaccine, researchers say the millions of dollars needed to finish it aren't coming anytime soon. "It's always viewed as a highly regional specialty, so it's always struggled to get a broad research base," says Michael Lancaster, the former head of the Kern County Public Health Laboratory, one of the few labs in the country equipped to confirm a valley fever diagnosis. "It's a little bit frustrating. West Nile virus swept

across the country. People died from West Nile-there's no question. But if you look at the overall impact, it was nowhere near cocci. And [West Nile] got so much funding."





Based on most recent available data. Sources: CDC, Journal of the American Veterinary Medical Association.

Outside academia, county health officials in the endemic zone are the closest thing to experts that valley fever has. Dr. Mike MacLean, the public health officer of Kings County, an underpopulated area in the middle of California, has witnessed one of the worst cocci outbreaks in the state. His county has only 150,000 or so residents, but it's also home to Avenal State Prison, a perennially overcrowded medium-security institution that, along with nearby Pleasant Valley State Prison, was ground zero for the cocci outbreak that began in 2005. With tanned cheeks and a thick white mustache, MacLean looks like he might rustle cattle on his days off. But he speaks with urgency and an unexpected passion. He is measured, but doesn't suffer bullshit or mince words. "I'm sure none of this would have happened if they weren't prisoners," he told me.

"I'm sure none of this would have happened if they weren't prisoners," one prison official told me. To understand the prison system's botched response to the festering outbreak, you need a quick history lesson. On April 5, 2001, the Prison Legal Office, a nonprofit law firm in Berkeley, filed the largest class action suit in the state's history against the California Department of Corrections. In it, attorneys alleged that the system was providing prisoners with medical treatment so poor as to be unconstitutional. Among the most shocking charges was that, on average, an inmate died every week due to inadequate care or malpractice. The state, likely because it was aware that

conditions in the prisons quite possibly qualified as cruel and unusual punishment under the Constitution, acquiesced and agreed to implement "comprehensive new medical care policies and procedures at all institutions."

Over the next few years, the state Department of Corrections claimed that it was cleaning up its act, even adding "rehabilitation" to its name. But three years after the settlement, court-appointed experts found that between 20 and 50 percent of physicians employed by the California Department of Corrections and Rehabilitation (CDCR) provided poor care; that many of the doctors had criminal pasts or revoked hospital privileges; that inmates were consistently misdiagnosed and ignored; and that 80 percent of high-level management positions in the health care services division were vacant. As former California undersecretary of corrections Kevin Carruth put it in testimony, "It never will be the business of the Department of Corrections to provide medical care."

In 2005, <u>Judge Thelton Henderson ruled</u> [5] that the CDCR had not kept its part of the bargain. The prison health care system, he wrote, was "broken beyond repair." With a single order, he stripped the department of its power to control the prisons' health care system and placed a federal official in charge. The official, known as the receiver, was tasked with fixing the "unconscionable" mess the prison system had created. If the corrections department was ever going to get out from under this federal receivership, dozens of new medical facilities would have to be built, thousands of hospital beds would have to be added, and the prison system would have to prove that it could and would provide inmates with adequate care.

But even as Henderson and prison officials were hashing out an arrangement in San Francisco's federal courthouse, the cocci outbreak was beginning to take hold 160 miles south. By the fall of 2005, 166 prisoners at Pleasant Valley State Prison had come down with valley fever. It was a galling number, even for a patch of Fresno County more than familiar with cocci. In Pleasant Valley's 20-year history, valley fever had been a regular concern, but this year was different. The rate of infection had tripled, and almost a fifth of the stricken needed hospitalization—an unusually high percentage. Four inmates had died. At Avenal—15 miles south, in Mike MacLean's county—47 inmates had contracted the disease so far.

A team of state epidemiologists arrived at Pleasant Valley to investigate the spike in cases. Dr. Janet Mohle-Boetani and Dr. Charlotte Wheeler went through the obvious options first. Had the prison started testing more frequently? Or hired new doctors? Or sent out for more lab results? No, no, and no. Cocci infections are dictated by environmental conditions—the spores multiply after rainy seasons, then cause an uptick in cases once the soil dries and the cocci-filled dust begins to swirl. Maybe it had been a big "grow and blow" year and numbers were up everywhere? No, infection rates within the prison were drastically higher than in the surrounding community and the state as a whole. To top things off, next door, about 500 feet from the walls of Pleasant Valley State Prison, the state had spent months clearing a large patch of land and constructing a sprawling, multistory mental-health facility. In late 2013, I drove to the suburban Sacramento office complex that the federal receivership calls home. Mohle-Boetani now works for the receiver and is technically the deputy medical executive for the public health unit of California Correctional Health Care Services. A Berkeley- and Stanford-trained physician and epidemiologist, she strikes a very doctorly figure: lightly graying hair, studious glasses, and the air of someone who doesn't doubt what she's saying. She first crossed paths with cocci more than a decade ago, when she was working as an officer for the California Department of Public Health, investigating a potential tuberculosis outbreak in the eastern San Joaquin Valley. Many of those cases, she realizes now, were likely valley fever.

Valley fever is in a completely different class from your typical prison disease outbreak, she told me. Prisons are and always have been breeding grounds for infectious diseases, she said, and as a result there are some standard responses—typically to isolate and quarantine. But you can't quarantine people from the very air they breathe. "I think it's one of the most difficult problems to deal with in public health," Mohle-Boetani said. She motioned to a photo she keeps tacked to the wall of her office, an aerial shot of Pleasant Valley State Prison, surrounded on all sides by dusty open fields. "How do you separate people from their environment?"

"What the fuck are you doing? Hurry the fuck up," one guard told him. "Don't come to jail if you can't breathe."

At first, says Wheeler, she thought the disease might contain itself. She reasoned that the inmates who recovered from valley fever would gain immunity and the outbreak would die out. But the prison system's habit of regularly transferring inmates between institutions ensured that there would always be fresh victims in Pleasant Valley.

In January 2007, Mohle-Boetani and Wheeler recommended a two-pronged strategy. The first was a series of environmental changes to reduce inmate exposure to dust: shrubbery planted in the open fields nearby and limited time outdoors. Second, the team said that the inmates most at risk should be removed from the environment. They recommended transferring out African Americans, Filipinos, and individuals with compromised immune systems.

In late 2010, Eteaki was transferred to the California Rehabilitation Center in Norco, 50 miles east of LA. After he told a doctor about his condition, Eteaki spied the physician Googling "valley fever." Norco sits adjacent to a palm-lined artificial lake in an area not known for the disease. The prison itself occupies a grand, eight-story Spanish-style manor—the remnants of the Norconian Resort Supreme, a famed hotel that once attracted Hollywood stars. Purchased by the Navy during World War II, it was given to the state in the 1960s.

At Norco, Eteaki's valley fever came raging back. Breathing became difficult, and he was overcome with exhaustion. He developed a bulging, globular growth on his neck. He lost another 25 pounds, for a total of 65. The prison's layout didn't help matters. Eteaki was being held on the third floor; the clinic was on the eighth. There was no elevator for inmates, and each day he wheezed up and down the five flights of stairs for his meds. He worried about passing out from the exhaustion. On each floor, guards implored him to speed up. "What the fuck are you doing? Hurry the fuck up," one guard told him. "Don't come to jail if you can't breathe." In the clinic, a doctor told him that his cocci had disseminated, escaping his lungs. The doctor was worried that the disease would find its way to Eteaki's brain and lead to fungal meningitis. You could die at any time from this, he warned, and he prescribed Eteaki an inhaler for the breathing difficulties.

A few weeks later, with three months left in his eight-month sentence, Eteaki's vitals declined. Once again he was cuffed, masked, and driven to the local hospital. There he was placed in the biohazard room, even though valley fever isn't passed from person to person. He felt like the monkey in the movie *Contagion*. His "titer count," the metric doctors use to estimate the concentration of fungi in the body, was dangerously high. That night, he was given an intravenous drip to push back the fungus. The neon-yellow liquid caused a negative reaction as soon as it entered Eteaki's bloodstream. He felt like he was being stabbed from the inside. Handcuffed, he struggled in vain to hit the panic button and halt the flow, finally throwing himself on the floor and tearing off his tubes and monitors in the process. The nurse who responded chided him for making a mess. A few days later, his titer count dropped and he was sent back to Norco. This is the pattern of valley fever: bouts of relative calm followed by relapses of the life-threatening, spirit-sapping illness.

When Eteaki's wife finally recognized the spindly man as her husband, she burst into tears. When Eteaki got back to Norco, his wife planned a visit. He hadn't seen his children in months, and he asked Milah to bring along their oldest son, then four years old. Eteaki and the other inmates were searched and led singlefile into the visiting room. When Eteaki shuffled through the door, his wife looked right past him. He was 65 pounds lighter, and his head had just been shaved to check for signs of meningitis. He looked hollowed out. When Milah finally recognized the spindly man as her husband, she burst into tears. Looking down at his son, Eteaki saw fear in the boy's eyes. At Pleasant Valley State Prison, the 166 reported cases of cocci in 2005 had swelled to 514 by 2006. In the year since Mohle-Boetani and Wheeler had visited, the outbreak had exploded, exceeding the worst expectations. At Avenal State Prison, 91 cases were reported. An esteemed valley fever expert at the University of California-Davis calculated that almost a third of cocci cases in the state originated in the prisons—up from 15 percent a year earlier.

When the corrections department received the epidemiologists' draft report, late in 2006, it acted with relative speed, agreeing to remove immunocompromised inmates from the affected prisons. However, despite Mohle-Boetani's recommendation to remove African American and Filipino inmates—nearly all of the cocci literature dating back to the 1930s notes the increased risk to these groups—the department decided to keep those inmates exactly where they were. (The California Department of Public Health can make recommendations, and the CDCR can elect not to carry them out.)

Most of Mohle-Boetani's other suggestions were ignored too. One of the key recommendations was to pave the ground around the prisons, a technique that had proved successful during World War II, when it had been used at Central Valley military bases, cutting cocci infections by between one-half and two-thirds. Covering the dusty expanse around the prison with concrete could reduce the number of cocci spores in the air, experts reasoned. But in January 2007, Pleasant Valley's warden, James Yates, balked. The initial cost was estimated at upward of \$750,000. In the end, the department opted for a cheaper alternative: chemical sprays and gravel cover to stabilize the soil. At the time, medical care for inmates with valley fever was costing the state \$23 million a year.

In 2007, a few months after the epidemiologists had issued their recommendations on valley fever—and the CDCR had ignored them—the department asked a separate delegation of county health officials to meet and discuss how the disease could be curtailed. The group, which included Kings County's Mike MacLean, <u>made</u> <u>26 detailed recommendations</u> [6], from simple landscaping to funding vaccine research. "If no significant improvement is made," the last recommendation reads, "consider relocating all inmates." Of the 26 recommendations, the CDCR pursued a total of 4.

Eteaki spent his last two weeks as a prisoner in the Norco clinic. Doctors were concerned that he was too sick to be released, but he begged. On March 30th, 2011, his wife picked him up and drove him back home to Long Beach.

When sick inmates are released from California's prison system, they're given a 30-day supply of medicine, regardless of their disease. Eteaki was jobless and uninsured. His condition worsened after his prison-issued anti-fungal drug—called Diflucan—ran out, and he began going to the emergency room for treatment. For Eteaki and the thousands of other prisoners who contracted valley fever behind bars, the cost of treatment came as a shock. A 30-day course of Diflucan was about \$550, but prison doctors had Eteaki on a double dosage because of the severity of his disease, so his treatment was twice as expensive. He asked the prison system for help, but it refused. He and his wife sought aid through Social Security and Medi-Cal, but they were told there was nothing anyone could

Between the hospital visits and the pills, Eteaki spent more than \$20,000 managing the disease, burning through all his savings.

do—because Sika's wife was working full time and the couple had savings, they did not qualify for assistance. He began to take fewer pills to try to stretch the bottles out. Between the hospital visits and the pills, Eteaki spent more than \$20,000 managing the disease, burning through all his savings—money he had hoped would help support his wife and children.

Eteaki's family helped him pay bills, but he felt ashamed for asking. One day, a few months after he was released, he lay on his mother's couch, sweating, moaning in pain. His mother began to call an ambulance, but he begged her not to; he couldn't afford the cost. Eteaki's mother and father had come from Tonga and lived the American Dream. His father made good money working at the foundry where Eteaki had been employed, and the family had never wanted. "We came out here for you guys to have a better future," his mother said as they drove to the hospital.

In one short year, valley fever had become the scourge of the Eteaki family. While Eteaki was in Norco, his younger cousin Mosese fell ill after taking a construction job in Arizona. When he returned to Utah, where he lived with his family, doctors were unable to diagnose him. He flew to California for tests, learned he had disseminated valley fever, and died five months later. He was 18 years old.

In 2012, the federal receiver recommended that the CDCR immediately transfer anyone categorized as "high risk," including African American and Filipino inmates. The court's experts agreed, as did the state's public health department and its epidemiologist, but the corrections department didn't do it.

In June 2013, the department's attorneys wrote a legal brief outlining why it should not be forced to hastily remove a large portion of the population from the affected prisons. Instead, they argued, officials should wait

for "experts from the Centers for Disease Control and the National Institute for Occupational Safety and Health [NIOSH] to complete their study and evaluation before implementing such a drastic remedy."

But the experts at NIOSH had been called in before—four and a half years earlier. In late 2008, officials from the prisons' Office of Risk Management, which oversaw occupational health and safety and workers' compensation, had sent a formal request to the agency, asking the epidemiological experts there to visit Pleasant Valley and Avenal to help the prisons reduce guards' and workers' risk of catching cocci. At least two workers had already died of the disease. NIOSH agreed to send two epidemiologists out to California for a site study. But at the last minute, the investigation was called off. At the time, no reason was given.

Prison officials are tight-lipped about why the federal government's epidemic experts never investigated the cocci outbreak, but emails and public records obtained from the counties, prisons, and CDC through Public Records Act and Freedom of Information Act requests show that despite a concentrated effort from a few public health employees inside the corrections department, prison officials killed the NIOSH health evaluation request.

One of the reasons, it seems, had to do with a mandate from the receiver to increase the number of medical facilities across the system and add thousands of beds to alleviate overcrowding. The state Legislature had just ponied up \$7 billion for the task [7]. In emails, members of the construction team wondered what effect building new facilities would have on the inmates and surrounding cities in the endemic zone: Would more people get sick if they disturbed the soil during construction and let more cocci spores loose? The fear of potential outbreaks could force the department to halt construction on the buildings they needed to meet the receiver's requirements and end the federal receivership. After department officials made the initial investigation request to NIOSH, prison employees appeared worried. "What will happen if [the review] leads to recommendations that we do not think are feasible?" one asked NIOSH's lead investigator as the evaluation date neared. "Does the media typically become aware of [NIOSH's evaluations]?"

Seven days before NIOSH's scheduled visit, the CDCR Office of Risk Management's lead health official, Dr. Nikki Baumrind, sent an email to Dr. Marie de Perio, NIOSH's point woman on the case. "Could you pls give me a call at your earliest convenience?" she wrote. That night, emails show, Baumrind called de Perio to say that the study would have to be delayed. Instead, an advisory panel was to be convened to address whether a NIOSH investigation was even necessary.

In notes from a later conference call, Baumrind is quoted as saying that the trip was postponed because of concern about the department's obligation to respond to NIOSH's recommendations.

For a few weeks, de Perio and state officials, including Baumrind, frantically searched for a new "sponsor" to call NIOSH in. The heads of the prison-guard unions—representatives of the very people the workplace-safety study was intended to protect—declined or ignored the request. California's independent public health department felt it was not appropriate to take the helm "in light of concerns that without full engagement from CDCR, the request would not lead to a successful outcome."

Then, in June 2009, the corrections department shuttered its own Office of Risk Management. In the four years after the CDCR canceled the workplace health and safety study, three correctional officers died of valley fever.

"We had the opportunity to have a quality study performed at no cost to California," MacLean wrote in an email to the director of the California Department of Public Health a few weeks later. "Cocci morbidity and mortality will continue regardless of our choice to ignore it. I think it's a sad comment on the state of public health in California."

In July 2013, lawyers representing several inmates at Pleasant Valley State Prison filed a class action lawsuit against the state. The suit alleged, among other accusations, that the CDCR and the state failed to protect and care for inmates vulnerable to cocci at several Central Valley prisons. The treatment that incarcerated valley fever patients received—and the system's unwillingness, for seven long years, to exclude at-risk inmates from the endemic prisons—constituted negligence, and was tantamount to cruel and unusual punishment, violating the Eighth Amendment. This wasn't the first time a prisoner had sued over valley fever. In 2009, a former inmate of the federal penitentiary in Taft, a small town at the southern end of the Central Valley, <u>sued the federal government</u> [8] for "recklessly" exposing him to cocci. The feds settled and agreed to pay him \$425,000.

The 2013 lawsuit listed case after case of prisoners with valley fever receiving subpar care. According to state reviews of inmate deaths, in 2008 a 26-year-old inmate told a prison nurse that he'd lost 10 pounds in the past month and suffered from chest pain and a constant cough. He was referred to a physician, but no appointment was made for him. Two weeks later, he submitted a request for care, writing, "Emergency. I would like to see the doctor ASAP." There is no record of a response from the clinic. Ten days later, he was 20 pounds lighter. After he was finally sent to a local hospital, doctors confirmed he had advanced cocci, but the infection had progressed too far to treat. The man died of renal and respiratory failure 10 days later.



In 2009, prison health

Lancaster State Prison sits on the border of Kern County, which has the highest rate of valley fever in California. Photograph by Mark Murrmann

providers failed to evaluate two prisoners; one had lost 56 pounds and suffered from consistent fever, cough, and chest pain. One had not been prescribed anti-fungal medication for two months. They both died soon after.

In 2010, when a 68-year-old inmate had a recurrent case of valley fever, doctors didn't consult with a specialist until the man was near death. At a local hospital, a unilateral "do not resuscitate/do not intubate" order was written by physicians. There are no records showing that the inmate, who died a few days later, was consulted.

In 2011, specialists failed to recognize that a 42-year-old HIV-infected man diagnosed with pneumonia had in fact been suffering from disseminated valley fever. He died.

In 2012, a 45-year-old black man told prison doctors he'd lost 20 pounds in the past six months. The attending physician checked a box on his medical chart indicating the man was at high risk for valley fever, but no testing was done for the disease. Three months later, after precipitous weight loss, the man entered the clinic in an altered mental state—a clear sign of meningitis—and was finally diagnosed with cocci. He died the next month.

Dr. John Galgiani, a professor at the University of Arizona and one of the world's leading experts on valley fever, <u>later wrote in a review</u> [9] that the prison medical system's response to the cocci outbreak was unacceptable, noting that the medical staff in the middle of the endemic zone was slow to recognize the signs of valley fever, particularly in African Americans, even years after the outbreak began. "As a result," wrote Galgiani, "needless suffering and death were inflicted on these men."

Arthur Jackson, a black inmate at Pleasant Valley, caught valley fever in 2011. "Two years after contracting this disease, I suffer from loss of vision, severe and often debilitating headaches and joint pain, weight loss, fatigue, and numerous other ailments for which I am consistently denied treatment," he wrote to me. "I often wonder if this disease were to have affected all races alike, would the response of prison officials have been the same or would more have been done to protect and treat us?"

"Living with valley fever in prison is simple," Pleasant Valley inmate LaCedric Johnson wrote to me. "You live every day like the last till you die." Johnson, who was convicted of carjacking and assault, contracted the disease in 2011. He's experienced lung damage, fever, chills, sweats, headaches, aching joints, severe weight swings, fatigue, sleeplessness, and loss of concentration. Like Eteaki, he was prescribed Diflucan. "Who gives a fuck," he wrote, "if a few thousand inmates are housed in a prison built on soil that contains a fungus in the ground that kills African Americans at a high rate?"

As the inmates' case winds its way through federal court, much of it will likely revolve around whether officials should have removed inmates from prisons in the hyperendemic area sooner. A key goal, attorneys say, is to force the state to cover the health care costs of former inmates who contracted valley fever in prison. One study found that many long-term valley fever patients, like Eteaki, spend tens of thousands of dollars on care, on top of the cost of hospital visits.

And while the prison system argues that it didn't know how bad the problem was—or didn't have the capacity to handle it—the attorneys say that doesn't wash. Nazareth Haysbert, one of the lawyers involved, told me, "It's a special irony that the US and California would knowingly confine US citizens, albeit prisoners, to the same areas—known to cause deadly outbreaks of cocci—from which they had removed Nazi prisoners of war mere decades earlier."

In October 2013, I called Eteaki and asked how he was doing. Things had been looking up for a while—with regular doses of Diflucan, he gained back some weight, went to work full time, and even began taking some community college classes. But when he stopped taking his Diflucan because he couldn't afford it, the disease

invaded his right index finger. His doctor recommended amputation to stop the fungus from spreading; a side benefit would be that he'd quality for disability, which would pay for the Diflucan. Eteaki was despondent. "I'm doing welding," he said. "How can I work without my finger?"

That November, I visited Pleasant Valley myself. By that time, all the African American and Filipino inmates were gone—more than a year after the receiver urged CDCR to transfer prisoners whose racial or ethnic backgrounds put them at high risk for valley fever, the department finally complied. Officials took me on a show-and-tell tour. I saw what court-mandated steps had been taken to help halt the spread of the cocci spores. I saw new ventilators, door seals, and informational signs about the dangers of dust inhalation. I was told CDCR would start screening all inmates for valley fever with a new skin test, in January 2015.



Sike Eteaki Photograph by Annie Tritt

Kalekale, who'd robbed a liquor store at gunpoint a few years earlier and was now serving a multiyear sentence. It was Johnny's younger brother, Mosese, who'd died of valley fever that he contracted at an Arizona construction site. Eteaki told me that Johnny had just been transferred to Pleasant Valley, sent to fill one of the vacancies left by the black and Filipino inmates—Pacific Islanders were not included in the transfer order. Johnny says he had told the transfer committee that his brother had died from valley fever, but this had changed nothing. (CDCR maintains he did not advise it of his brother's death.)

I wanted to meet Johnny, but I wasn't allowed to interview specific inmates. I was, however, allowed to wander the yard and talk to random prisoners. I met an older man, Nicolas Moran, who said that he'd had

valley fever for several years but the doctors were refusing to treat his latest outbreak. He was in pain, he said. He begged me to tell his story. "We're human beings too," he said. "What's the difference between us?"

I sent Johnny Kalekale a letter. In his reply from Pleasant Valley, he wrote, "I honestly felt like they were sending me to my death. I won't let my wife bring my kids, for fears they might catch it. I know I've done things to end up here, but I hope I don't leave this world because of VF."

Source URL: <u>http://www.motherjones.com/environment/2015/01/valley-fever-california-central-valley-prison</u>

Links:

- [1] http://www.cdc.gov/features/valleyfever/
- [2] http://www.cdc.gov/fungal/diseases/coccidioidomycosis/causes.html
- [3] http://www.ppic.org/main/publication_show.asp?i=702

[4] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6212a1.htm

[5] http://www.motherjones.com/documents/1374478-plata-receivership-original-ruling-2005

[6] http://www.motherjones.com/documents/1374566-county-health-officials-recommendations-for

[7] http://www.scpr.org/news/2008/06/19/2247/state-scales-back-prison-plan/

[8] http://www.bakersfieldcalifornian.com/health/x1040747282/Case-highlights-cost-complexity-of-battling-valley-fever-in-prisons

[9] http://www.motherjones.com/documents/1374570-galgiani-declaration

Exhibit 53



Title:

Solar Power in the Desert: Are the current large-scale solar developments really improving California's environment?

Author:

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California deserts are faced with unprecedented anthropogenic change. Impact factors range from expanding urban centers and military bases, to potential significant habitat loss from solar and thermal power expansions (including ground water exploitation and depletion beyond recovery, land stripping for power generation units, and fragmentation from power and associated transportation corridors), and climate change. Together these factors threaten remaining suitable habitat for endangered and for other endemic desert species. Our goal here is to outline the scope of environmental changes that are underway, and to outline research needs necessary to provide long-term sustainability of federally- and state-listed species and their habitats, ensuring that energy developments are also fully compliant with the letter and intent of state and federal resource protection statutes. We identified several topic areas that are of concern to land managers and project developers in the California deserts. These represent topic areas badly in need of research using state-of-the-art techniques coupled with known expertise, tailored to the desert areas to be impacted by the proposed developments.

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DESERT DEVELOPMENT ISSUES

Solar Power in the Desert: Are the current large-scale solar developments really improving California's environment?

Gaps in Desert Research

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California deserts are faced with unprecedented anthropogenic change. Impact factors range from expanding urban centers and military bases, to potential significant habitat loss from solar and thermal power expansions (including ground water exploitation and depletion beyond recovery, land stripping for power generation units, and fragmentation from power and associated transportation corridors), and climate change. Together these factors threaten remaining suitable habitat for endangered and for other endemic desert species. Other individuals and studies have commented on the use of out-moded technologies employed in the current American Recovery and Reinvestment Act of 2009 (ARRA) projects, and the economic subsidies that are enabling individual site development and the creation of new transmission corridors in remote, previously undisturbed, areas rather than focusing on existing degraded lands and power corridors. We want to be clear that although we question the current project implementation in this article, we strongly support a transition from a fossil-fuel based energy system to one that will not further exacerbate our current trajectories of anthropogenic climate change, as well as providing energy independence and economic stimulus for our country.

Our goal here is to outline the scope of environmental changes that are underway, and to outline research needs necessary to provide long-term sustainability of federally- and state-listed species and their habitats, ensuring that energy developments are also fully compliant with the letter and intent of state and federal resource protection statutes. We identified several topic areas that are of concern to land managers and project developers in the California deserts. These represent topic areas badly in need of research using state-of-the-art techniques coupled with known expertise, tailored to the desert areas to be impacted by the proposed developments. These include the following issues and their interactions:

- Climate change and shifts in endangered species habitat location and migration potential
- Sources, recharge, and loss of groundwater from large-scale solar steam generator systems
- Persistence of endangered, threatened, and unlisted endemic species in current protected areas, and in new areas where habitat suitability is altered from climate and anthropogenic land-use change
- Exotic invasive species migration pathways, competitive abilities and productivity
- Interactions among vegetation composition, production, fire, pollution and climate change
- Carbon budgets and net carbon loss or sequestration.

Unfortunately, many federal and state agencies, as well as several non-government organizations, whose goal is to protect habitats appear to have overlooked previous results suggesting unacceptable levels of "take" for endangered species, and overlooked existing literature addressing net carbon fluxes that would be affected by the proposed solar developments. Nor have they employed state-of-the art research tools capable of integrating new ecosystem and habitat modeling approaches coupled with carefully-collected spatial and temporal data.

Most of the large-scale solar power projects utilize large quantities of water as steam power generators. The largest of these plants are steam-based thermal plants, using up to 2.9 to 3m³/MWh (US DOE 2006). Assuming 12h/day of active use, a 1,000MW would drain 35,280m³/day, or 28.6 acre-feet of water per day, or 10,435 acre-feet/year. One groundwater basin, such as the Palo Verde Mesa Groundwater Basin recharges only 800 acre-feet per year, largely from recharge by underflow from the Chuckwalla Valley (Department of Water Resources 2003). Even with a low water system, with less energy efficiency, the water use may still likely be well more than the recharge rates. The use of water affects agriculture, existing housing and businesses, the mining industry, military training grounds, and wildlife habitats. Plant species, such as the Amargosa niterwort (Hasselquist & Allen 2009), and animals including the desert pupfish populations in Ash Meadows (Deacon et al. 2007, Martin 2010) that are dependent upon surface waters and a high groundwater level are once again threatened this time by solar development. Despite the Department of Interior's call that conservation is a high priority, this is not apparent for these developments.

While researchers in the region, including UC Riverside scientists, have been addressing factors that challenge the ability of desert ecosystems to sustain themselves with state-of-the-art analyses, many state and federal agencies have continued to employ outdated models and decision tools (e.g., see "Harness sun wisely" Riverside Press-Enterprise 12/26/2010, and "energy developers need better tortoise counts, officials say" Riverside Press-Enterprise 11/4/10).

Federally-listed species such as the desert tortoise and those of concern like the Mohave fringe-toed lizard (Fig 1) are already impacted by new energy developments (e.g., the Ivanpah bulldozing of prime tortoise habitat), roads and urbanization, invasive plants, and changes in military base activities. Relocating species like the tortoises to unoccupied habitats, even those postulated "suitable" by experts, is conceptually flawed. Over 50 percent mortality is reported in short-term experiments (Desert Tortoise Council 2010). If environmental factors like climate change is included, the potential habitat in the desert is reduced even further (Fig 2).



Figure 1. Species that are directly impacted by the current and proposed developments in the California deserts, include the desert tortoise (a federally-listed endangered species) and the Mojave fringe-toed lizard (local populations are of concern to ecologists) (photographs by Cameron Barrows).



Figure 2. Potential response of desert tortoise to projected climate change at Joshua Tree National Park (C. Barrows). The white plus brown areas represents current habitat. White is the area lost with a 1°C increase in temperature, and a 75mm drop in precipitation, with the brown showing the remaining habitat. Transplanting animals, such as the desert tortoise is conceptually suspect, and the data presented to date suggest that this is not a viable approach. Even if accepted, "unoccupied" habitats are both currently suspect, and certainly have not been vetted against future climate change.

Solar development is essential to reduce carbon inputs to the atmosphere and global warming. But solar development needs to incorporate the best available science into planning and production efforts. The proposed large scale solar developments in California will impact dramatically current habitat and potential habitat of species of concern. We already understand that development patterns can dramatically affect current and potential habitat, as published for the Coachella Valley fringe-toed

lizard (Barrows et al. 2010). Coupling climate change and development impacts could easily lead to local extinction for many populations of these species, and even extinction in some cases (Barrows et al. 2010).

Infrastructure and transportation associated with urban expansion and energy development is likely to impact significantly desert environmental quality. Almost all areas outside of the National Parks, and the existing military bases are among areas potentially subject to these developments (Fig 3). A decade ago, we demonstrated that in developed areas, such as along highway 62, nitrogen in the



Figure 3. Proposed large-scale energy projects (http://www.energy.ca.gov/siting/solar/ cdd_energy_points_8_5x11_solar.pdf). These areas will be subject to increased habitat fragmentation, vehicular traffic and development resulting in significantly increased air pollution, and N deposition.

soil accumulated during the dry season from vehicular-derived air pollution (Fig 4, M. Allen unpublished data). These soil depositions functioned as fertilizer and were subsequently leached and absorbed by vegetation during the wet season, contributing to the massive increase in exotic grass production, to a level capable of carrying fire (Rao et al. 2010). Regional nitrogen deposition models (Fig 5) show that the military bases and solar developments are in locations undergoing increasing air pollution, threatening endangered species and land management protocols. Continued disregard of these changes likely will have dramatic impacts on the natural resource management issues of the region.



Figure 4. N changes in soil in response to development activity (M Allen unpublished data) showing seasonal increase in N in a developed area (near Palm Desert) versus a remote site (29 Palms Marine Corps base) in 1998. As the Yucca Valley and other desert regions continue to develop, and new energy developments are placed, the potential for more problems with N deposition, fire, and invasive species continues to grow.

Many of the areas that are proposed to be developed for the solar development include Microphyll woodlands (Fig 6). The dominant plants (legume trees) have deep roots capable of reaching groundwater (several meters). When desert plants grow, they absorb carbon dioxide (CO₂). The carbon (C), as sugars, moves into roots and soil organisms. Carbon dioxide is respired back into the soil, part of which reacts with calcium (Ca) in the soil to form calcium carbonate. This is how our deserts sequester large amounts of C and thus function to reduce atmospheric CO₂. *The magnitude of this carbon storage process is still a crucial research question and remains unknown for our California deserts.* However, values of up to 100g/m2/y of C-fixation are reported for deserts in Baja and Nevada (Serrano-Ortiz et al. 2010). After vegetation is removed to make


Figure 5. Fire in the desert and nitrogen deposition (from CCB, R. Johnson and E. Allen). Research in the Mojave desert (Rao et al. 2010) shows that in these regions, N deposition (largely from transportation and suburban development) above 3-9 kg/ha/y is above the "critical load" that facilitates exotic grass production, can result in fire and permanent ecosystem degradation. As development increases surrounding these areas, the potential for invasive species, land degradation, and risk of fire increases as it has in other developing areas.



Figure 6. Microphyll woodlands are among the most productive ecosystems that will be affected by solar power facilities. There are no data documenting the amount of carbon sequestration that will be lost with the loss of these stands. However, because these stands access groundwater, they are among the most productive of desert ecosystems.

way for solar arrays, carbon dioxide will be left to return to the atmosphere that ordinarily would have been used to form soil organic matter buried up to several meters deep, or released by roots and soil microbes as soil CO₂, which in turn, binds with soil Ca to form caliche.

Our deserts have large amounts of CO_2 , stored as caliche (CaCO₃). The amount of C in caliche, when accounted globally, may be equal to the entire C as CO₂ in the atmosphere. This caliche is formed from weathering of Ca in desert soils binding to carbonates that originate in large part from respiration of roots and soil organisms. Most of the caliche in our deserts was formed during the ice ages, when vegetation was more dense and more productive. These deposits likely have been stable since (Schlesinger 1985). Being stable, though, means that inputs equal exports. Carbon in caliche may in fact be released, especially when vegetation and soils are disturbed. Mielnick et al. (2005) reported losses of up to $145g \text{ C/m}^2/\text{y}$. Additional research is needed to understand and quantify these exchanges (Schlesinger et al. 2009, Serrano-Ortiz et al. 2010), as there are C exchanges in desert ecosystems that we do not understand. This loss may be especially critical following removal of the vegetation for thermal solar power units. The net C loss due to a loss of native desert vegetation could be as high as $50g C/m^2/y$ plus weathering and dissolution of carbon dioxide from caliche up to $150 \text{g/m}^2/\text{y}$ for an area of 7,000 acres (a common size for solar plants of 1,000MW). This translates to an annual loss of nearly 6,000 metric tons of C released by caliche, or retained in the atmosphere due to the loss of vegetation. This does not include the land disturbed by transmission corridors and maintenance roads through desert lands.

Solar power units that generate 1,000MW would save nearly 560,000 metric tons of C per year. However, we do not know the life-span of these solar power units. This net loss of caliche could continue or even increase as temperatures warm for centuries or more, given the incredibly large amount stored in our California desert valleys and vegetation recovery following disturbance for developing desert lands can also take a century or more (Fig 7). If we include the C savings from an active use of photovoltaic cells in the locations where demand is heavy (see Warmann and Jenerette 2010), then the entire regional C balance becomes even less weighted toward the large desert thermal developments.

Finally, what is the life-expectancy of a thermal solar energy development? A common presumption is that these extend indefinitely into the future. But water quality is a crucial issue for solar development, because water from both the Colorado River and the groundwater basins of the regions are highly corrosive to the project plumbing. This means additional land disturbance from maintenance and replacement activities, and a reduced lifespan of these solar projects. Given changes in government subsidies, the over-exploitation of groundwater supplies, and the heavy replacement and maintenance costs associated with the corrosive water quality, this may not be a reasonable assumption. Even when plant reestablishment occurs, disturbed lands will be dominated by annual grasses and

forbs with shallow roots instead of deep-rooted shrubs, potentially for a century or more. Soil organic C likely will rapidly cycle back to the atmosphere. We do not know how soil inorganic C behaves. Understanding the lifespans of the solar plants, compared with this long-term slow C balance is a critical need for determining if these solar developments represent a net long-term reduction in greenhouse gases. Does calcium carbonate then weather back into CO₂ with no plants to replenish the soil CO₂? Could large-scale solar developments in our deserts actually increase atmospheric greenhouse gas levels over the next centuries?



Figure 7. Overlook from Desert Center, CA, looking eastward across lands designated for solar power development. The combination of developments has the potential to fragment populations of desert species, degrade soils, and reduce carbon sequestration potential of these arid lands.

The areas of the California deserts where the mega- solar projects are to be built are mainly in areas where water is the limiting factor for production and organism survival. Precipitation is highly variable in space and time, and hydrology is not well documented. The basins are interconnected. Yet we know little about the rates or even directions of the subsurface flows and small transient perched water pockets created by earthquake fault lines that support plants whose roots must reach the groundwater, such as palms, ironwood and mesquite. Water extraction at large scales could have critical impacts on desert ecosystems, including animal species like deer, bighorn sheep, and mountain lions, more than just tortoises. Microphyll woodlands and mesquite stands support various endangered species and species of concern, both directly as habitat and food, and indirectly by supporting annual forbs that serve as food sources as the soil dries out. We do not know how or where water is connected between basins, nor if the water used for individual projects is continually recharged, or comprised of water laid down in the Pleistocene.

Concluding Remarks

These development impacts are particularly questionable given the incredible surface area located in regions with high solar radiation such as southern California. Warmann and Jenerette (2010) estimated that 10 percent of the rooftop areas suitable for solar photovoltaic systems could supply 80 percent of the annual energy requirements for the region. Given the large acreages of private, already disturbed lands scattered across the California deserts, use of more pristine habitat of endangered species like the desert tortoise and the *Amargosa niterwort* seems counterproductive.

Again, we are not objecting to renewable energy development in the California deserts. Indeed, we have worked for decades with military installations and with energy companies to enhance environmental management and restoration. We can do the same with renewable energy projects. However, without careful planning and management, massive detrimental impacts over extremely large areas could result from the current energy development proposals. For society to benefit from solar energy while preserving our desert ecosystems, we must obtain and use sound existing scientific methods, and fund credible new science based on accepted review and award principles, as practiced by agencies with experience in peer-reviewed funding such as National Science Foundation or National Institute of Health. We must apply principles as judged by published peer-reviewed literature in top journals, and defendable, innovative ideas judged by scientific experts without conflicts of interest.

If the construction of poorly placed solar arrays in California leads to the loss of endangered species, destruction of plant and animal habitat, increased environmental contaminants, diversion of water and increased global warming due to more carbon dioxide in the atmosphere, then any justification for placing solar arrays in our deserts is seriously undermined.

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Exhibit 54



Exhibit 55



immitis which lives in the top two to 12 inches of soil in many parts of the state. When soil is disturbed by activities such as digging, driving, or high winds, fungal spores can become airborne and potentially be inhaled by workers. Populations with more than 20 cases annually of Valley Fever per 100,000 people are considered highly endemic.

While the fungal spores are more likely to be present in the soils of the Central Valley, they may also be present in other areas of California. The map below shows the areas with the greatest incidence of reported human Valley Fever cases.



How can Valley Fever be Prevented?

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

· Determine if your worksite is in an endemic area.

When fungal spores are present, any work activity that disturbs the soil, such as digging, grading or other earth moving operations, or vehicle operation on dirt roads, can cause the spores to become airborne, therefore increasing the risk of Valley Fever. All workers on sites where the fungus is present, and who are exposed to dusty conditions and wind-blown dusts are at increased risk of becoming infected.

- Construction workers and other workers on construction sites, including roadbuilding and excavation crews
- Archeologists
- Geologists
- Wildland firefighters
- Military personnel
- Workers in mining, quarrying, gas and oil extraction jobs
- Agricultural workers'
- ^c Cultivated, irrigated soil may be less likely to contain the fungus compared to undisturbed soils.

What should employers do if a worker reports Valley Fever symptoms?

Report all hospitalized cases and deaths to Cal/OSHA.

Complete the "Employer's Report of Occupational Injury or Iliness" (Form 5020) for each suspected occupational Valley Fever illness.

Send the worker to a workers' compensation healthcare provider or occupational medicine clinic whose staff is knowledgeable about Valley Fever. Alert the provider or clinic to the possibility that the employee was

- Adopt site plans and work practices that reduce workers' exposure, which may include:
 - Minimize the area of soil disturbed.
 - $\circ\;$ Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust
 - Stabilize all spoils piles by tarping or other methods.
 - Provide air conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed.
 - · Suspend work during heavy winds.
 - Onsite sleeping quarters, if provided, should be placed away from sources of dust.
- When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144).
- Take measures to reduce transporting spores offsite, such as:
 - Clean tools, equipment, and vehicles before transporting offsite.
 - If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.
- Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever
- Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms.
- Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment.

exposed to dusts that may contain coccidioides spores. Physicians must submit a "Doctor's First Report of Occupational Injury or Iliness" (Form 5021) for each employee evaluated for occupational Valley Fever.

Record all cases on the Cal/OSHA Log 300.

More Resources ...

- California Department of Public Health Valley Fever informational page
- Kern County Public Health Services Department Valley Fever Website
- Center for Disease Control and Prevention Valley Fever informational page
- Valley Fever Americas Foundation
- University of Arizona Valley Fever Center for Excellence

October 2013

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Exhibit 56a

Preventing Work-Related Valley Fever (Coccidioidomycosis)



Every year, over 1000 Californians receive hospital treatment for Valley Fever (coccidioidomycosis), an illness with pneumonia and flu-like symptoms. About eight of every 100 people hospitalized die from the infection annually. Yet workplace health and safety plans often do not even mention Valley Fever, despite the fact that it can be disabling or fatal.

Workers who dig or otherwise disturb soil containing the *Coccidioides immitis* fungus are at risk for getting the illness. The fungus lives in the soil in parts of California, particularly the Central Valley. When people inhale the fungal spores released when the soil is disturbed, they may get Valley Fever.

Some workers at higher risk for Valley Fever include wildland firefighters, construction

workers, archaeologists, military personnel, and workers in mining, gas and oil extraction jobs. The Occupational Health Branch (OHB) has investigated Valley Fever in multiple types of jobs to better understand and explain to employers and workers how to prevent the illness.

Photo: Construction and other workers who disturb soil are at risk

OHB materials on Valley Fever

- Preventing Work-Related Coccidioidomycosis (Valley Fever) (PDF) 🔲 Fact sheet, June 2013
- Training for Wildland Firefighters on Preventing Valley Fever (PDF)
 Tailgate training, July 2013
- Coccidioidomycosis Among Cast and Crew Members at an Outdoor Television Filming Event MMWR report, April 2014
- Occupational Coccidioidomycosis in California (PDF)
 Journal article, May 2012
- Coccidioidomycosis Occupational Health Issues Free online continuing medical education (CME) course, June 2013

Additional information and resources

- Coccidioidomycosis, Valley Fever CDPH web page with multilingual fact sheets and California data
- Coccidioidomycosis, Valley Fever Centers for Disease Control and Prevention (CDC) web page
- Increase in Reported Coccidioidomycosis MMWR report, March 2013
- Outbreak of Coccidioidomycosis in Construction Workers Journal article abstract, October 2009

Hazard Evaluation System and Information Service (HESIS)

Occupational Health Branch

Last modified on: 7/28/2014 1:12 PM

Exhibit 56b

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Outdoor worker safety: avoid valley fever exposure

Pillsbury Winthrop Shaw Pittman LLP **Amy L. Pierce**

USA October 21 2013

symptoms.

The California State Contractors License Board and California Department of Public Health warn that construction and other workers who disturb soil are at risk for contracting Valley Fever, and encourage employers to include protective measures in workplace health and safety plans. The Coccidioides immitis fungus lives in the soil in parts of California, particularly in the Central Valley, and in several southwestern U.S. states, and in Central and South America. Valley Fever is contracted by inhaling fungal spores that live in the dirt and that are stirred up by activity, including but not limited to construction, digging or driving, or working in dusty, windblown areas. Typically those who become infected experience pneumonia and flu-like

Workers at higher risk for Valley Fever include wildland firefighters, construction workers, archaeologists, military personnel, and workers in mining, gas and oil extraction jobs. In 2007, 10 members of a 12-person construction crew excavating a trench developed Valley Fever (also known as coccidioidomycosis), an illness with pneumonia and flu-like symptoms. Seven of the 10 had abnormal chest x-rays, four had rashes, and one had an infection that spread beyond his lungs. Over 1000 Californians are hospitalized with Valley Fever every year. About 8 of every 100 people hospitalized die from the infection annually.

Although there is no vaccine against Valley Fever, the Department of Public Health suggests that employers and workers can take protective measures including but not limited to "incorporating the following elements into the company's Injury and Illness Prevention Program and project-specific health and safety plans:

1. Determine if the worksite is in an area where Valley Fever is endemic (consistently present). Check with your local health department to determine whether cases have



Register



Author page »

been known to occur in the proximity of your work area. See the map on page 2 to determine whether your company will be working in an endemic county.

- 2. Train workers and supervisors on the location of Valley Fever endemic areas, how to recognize symptoms of illness (see page 3), and ways to minimize exposure. Encourage workers to report respiratory symptoms that last more than a week to a crew leader, foreman, or supervisor.
- 3. Limit workers' exposure to outdoor dust in disease-endemic areas. For example, suspend work during heavy wind or dust storms and minimize amount of soil disturbed.
- 4. When soil will be disturbed by heavy equipment or vehicles, wet the soil before disturbing it and continuously wet it while digging to keep dust levels down.
- 5. Heavy equipment, trucks, and other vehicles generate heavy dust. Provide vehicles with enclosed, air-conditioned cabs and make sure workers keep the windows closed. Heavy equipment cabs should be equipped with high efficiency particulate air (HEPA) filters. Two-way radios can be used for communication so that the windows can remain closed but allow communication with other workers.
- 6. Consult the local Air Pollution Control District regarding effective measures to control dust during construction. Measures may include seeding and using soil binders or paving and laying building pads as soon as possible after grading.
- 7. When digging a trench or fire line or performing other soil-disturbing tasks, position workers upwind when possible.
- 8. Place overnight camps, especially sleeping quarters and dining halls, away from sources of dust such as roadways.
- 9. When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Household materials such as washcloths, bandanas, and handkerchiefs do not protect workers from breathing in dust and spores..."

They can also become vigilant about watching for warning symptoms, and seeking early medical attention if typical symptoms appear (between 7 and 21 days after breathing in spores) and include:

- Cough
- Fever
- Chest pain
- Headache
- Muscle aches
- Rash on upper trunk or extremities
- Joint pain in the knees or ankles
- Fatigue

Tags USA, Construction, Employment & Labor, Healthcare, Pillsbury Winthrop Shaw Pittman LLP

If you are interested in submitting an article to Lexology, please contact Andrew Teague at ateague@lexology.com.

"I enjoy the CLANZ newsstand and find it highly relevant to my job. I definitely have forwarded various articles to my colleagues on occasion where there is a point of general interest, particularly employment or IT law. I...

Monique Greene Corporate Counsel Powershop

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Exhibit 58

Rates and Risk Factors for Coccidioidomycosis among Prison Inmates, California, USA, 2011¹

Charlotte Wheeler, Kimberley D. Lucas, and Janet C. Mohle-Boetani

Coccidioidomycosis is a disease acquired by inhaling spores of Coccidioides immitis, a fungus found in certain arid regions, including the San Joaquin Valley, California, USA, where 8 state prisons are located. During 2011, we reviewed coccidioidomycosis rates at 2 of the prisons that consistently report >80% of California's cases among inmates and determined inmate risk factors for primary, severe, and disseminated coccidioidomycosis. Inmates of African American race/ethnicity who were >40 years of age were at significantly higher risk for primary coccidioidomycosis than their white counterparts (odds ratio 2.0, 95% CI 1.5–2.8). Diabetes was a risk factor for severe pulmonary coccidioidomycosis, and being African American was a risk factor for disseminated disease. These findings contributed to a court decision mandating exclusion of African American inmates and inmates with diabetes from the 2 California prisons with the highest rates of coccidioidomycosis.

Coccidioidomycosis, commonly called "cocci" or "valley fever," is an illness caused by *Coccidioides immitis* and *C. posadasii*, soil-dwelling fungi found in certain arid regions of the southwestern United States, northern Mexico, and Central and South America. Infection is acquired by inhaling airborne fungal spores and is not spread person-to-person. Sixty percent of *Coccidioides* infections are asymptomatic, and most symptomatic infections consist of self-limited, flu-like illnesses. A small proportion of cases result in prolonged illness that may require lifelong treatment and can be life-threatening, particularly the 3%–5% in which the disease disseminates outside of the lungs. Infection, except in very rare cases, confers lifelong immunity.

In 2005, the medical executive team of the California Department of Corrections and Rehabilitation (CDCR) informed the California Department of Public Health (CDPH) that physicians at 2 prisons for adult men (prison

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X and prison Y) reported an increase in the number of inmates with coccidioidomycosis. The prisons are located <15 miles apart from one another in a *Coccidioides*-endemic area of California's San Joaquin Valley. In response to the call, CDPH investigated the cases at prison X and confirmed rates of disease >400× higher than those of the surrounding county. Additionally, CDPH performed a cohort study at prison X and identified an increased risk for coccidioidomycosis among African American inmates, inmates ≥40 years of age, and inmates who resided on a particular yard (J. Yuan, unpub. data).

In 2006, CDPH made recommendations concerning coccidioidomycosis. In response, the California Correctional Health Care Services (CCHCS) (the medical arm for California inmates) instituted policies for educating inmates and staff about coccidioidomycosis and for excluding inmates with immunocompromising conditions or severe chronic obstructive pulmonary disease from California prisons in 3 coccidioidomycosis-endemic counties. In addition, the agency mandated the cancellation of planned construction to expand prison X. During subsequent years, prisons X and Y took measures to control ambient dust (and presumably spores) by planting native grasses and shrubs on bare grounds. In December 2011, prison X applied a soil-stabilizing emulsion to most of the grounds within the prison's perimeter. Despite these efforts, high coccidioidomycosis attack rates continued to be reported from these institutions (CCHCS coccidioidomycosis surveillance system, unpub. data).

The purpose of this study was to review rates of coccidioidomycosis at prisons X and Y, to reevaluate the population for risk factors for development of primary disease, as well as to evaluate inmate risk factors for development of the most debilitating forms of coccidioidomycosis. We used the study results to improve the policies and practices for protecting California inmates from coccidioidomycosis and its most serious sequelae.

¹Preliminary results from this study were presented at the 7th Academic and Health Policy Conference on Correctional Health, March 20–21, 2014; Houston, Texas, USA.

Materials and Methods

Coccidioidomycosis Incidence and Cases per Person-Years

We calculated coccidioidomycosis incidence in 2 ways: 1) as a proportion of the population at risk, and 2) as the number of cases per person-years. Because community coccidioidomycosis rates are measured by incidence proportions, we calculated inmate rates by the same measurement to enhance comparison. Because cases per person-years is the recommended measure of disease incidence in a dynamic population, and because inmates are frequently moved from one prison to another throughout a year, calculating inmate cases per personyears gave us a measure against which to check coccidioidomycosis incidence proportions. Our concern was that the coccidioidomycosis incidence proportions might overestimate coccidioidomycosis rates in this study population.

To calculate coccidioidomycosis incidence proportion in the prisons, we derived coccidioidomycosis case counts from a surveillance system implemented in California prisons in 2007. Public health nurses assigned to CDCR prisons report coccidioidomycosis cases to the CCHCS Public Health Branch. Cases must meet the National Notifiable Diseases Surveillance System case definition for coccidioidomycosis (1). We calculated the yearly rates in prisons by dividing the surveillance-derived case counts by the published mid-year inmate populations (2). We obtained city coccidioidomycosis counts from local county health departments (F. Aranki, M. MacLean, unpub. data), and county and state coccidioidomycosis counts from data published by CDPH (3). We calculated annual community rates by dividing coccidioidomycosis counts by mid-year population estimates obtained from local health departments (for cities) and from the California Department of Finance (for counties and the state of California) (4,5). Because community data contain prison counts, prisons X and Y coccidioidomycosis counts were subtracted from their respective community coccidioidomycosis counts (city, county, and state counts), and prisons X and Y population counts were subtracted from their respective community populations. We compared prisons X and Y coccidioidomycosis incidence proportions to the incidence proportions of their surrounding communities and to those of Kern County and the state of California. Kern County coccidioidomycosis incidence proportions are benchmarks because Kern County consistently reports the highest coccidioidomycosis incidence of any county in California.

We calculated cases per person-years for prisons X and Y based on data from a cohort of inmates who had spent ≥ 1 night in 2011 at either prison X or Y (study cohort). This cohort was subject to certain exclusions: inmates who spent time at both institutions during 2011, inmates who received a coccidioidomycosis diagnosis before 2011, and inmates who received a coccidioidomycosis diagnosis in 2011 at a prison other than X or Y. To derive the total number of person-years spent at the prisons, we summed the number of days each inmate was incarcerated at prison X or Y and divided that sum by 365.

Risks for Primary Coccidioidomycosis

We defined primary coccidioidomycosis as an illness compatible with coccidioidomycosis that caused an inmate to seek medical attention and that was confirmed as coccidioidomycosis by a laboratory test. We collected primary cases from the CCHCS coccidioidomycosis surveillance system. We performed a cohort study to determine risk factors for primary coccidioidomycosis based on race/ethnicity, age, and whether the inmate had diabetes mellitus (DM); the latter was included in the model because studies and case series have identified an association between DM and complications of coccidioidomycosis (6-9). For this analysis, we again used the study cohort dataset that we had used to determine the coccidioidomycosis cases per person-years. Race/ethnicity, birthdate, and DM status were available for each inmate in the study cohort. Race/ethnicity is recorded on an inmate's arrival into the CDCR prison system and is chosen by the inmate from a list of 27 race/ethnicities that includes a category called "other."

We grouped the race/ethnicity values into 5 categories: African-American (for those inmates who identified themselves as black or Jamaican); Asian/Pacific Islander (for those who identified themselves as Cambodian, Chinese, Filipino, Guamanian, Hawaiian, Japanese, Korean, Laotian, Other Asian, Pacific Islander, Samoan, Thai, or Vietnamese); Hispanic (for those who identified themselves as Colombian, Cuban, Guatemalan, Hispanic, Mexican, Nicaraguan, Puerto Rican, or Salvadoran); other (for those who identified themselves as American Indian, Indian, or other); and white (for those who identified themselves as white).

We calculated age at midyear 2011 and included age as a continuous variable in our model. DM status of each inmate was determined on the basis of laboratory (hemoglobin A1C results) and pharmacy information (diabetic medication prescriptions). To determine risks for primary coccidioidomycosis, we explored interaction by using stratified analyses and then performed logistic regression on a model that contained all variables and interaction terms.

Risks for Severe and Disseminated Coccidioidomycosis

To determine risk factors for severe and disseminated disease, we performed a case-control study. We defined severe disease as a case of coccidioidomycosis that was confined to the lungs (nondisseminated), for which the patient required ≥ 10 days of hospitalization. A patient was determined to have severe coccidioidomycosis if he was in the hospital for ≥ 10 days during which all hospital discharge International Classification of Disease, Ninth Revision

RESEARCH

(ICD-9), codes indicated nondisseminated coccidioidomycosis (ICD-9, codes 114.0 or 114.4-114.9). We defined disseminated coccidioidomycosis as disease in which the patient had a discharge ICD-9 code for disseminated coccidioidomycosis (ICD-9 codes of 114.1-114.3) for any hospitalization. Cases were derived from the CCHCS hospitalization discharge dataset for the period July 1, 2010, through April 11, 2013. This dataset contained hospitalization data for CDCR inmates incarcerated in any of California's 33 adult prisons. Controls were patients in whom coccidioidomycosis was diagnosed in 2011 at prison X or Y who had not been hospitalized as of April 11, 2013. We evaluated the variables of race/ethnicity, age, and DM status by using logistic regression to predict severe and disseminated coccidioidomycosis. For the models for severe and disseminated coccidioidomycosis, our numbers were not robust enough to support models with interaction terms.

Statistical Analyses

We used SAS 9.2 (SAS Institute; Cary, NC, USA) for all statistical analyses. The p value for statistical significance was set at ≤ 0.05 .

Results

Coccidioidomycosis Incidence and Cases per Person-Years

For 2011, the coccidioidomycosis cases per 100,000 population for prisons X and Y were 6,934 and 3,799, respectively, 1–2 orders of magnitude higher than the rates at the other 6 prisons in 3 counties to which coccidioidomycosis was endemic (Table 1). These rates were also

Table 1. Coccidioidomycosis cases in prison X, prison Y, and prisons 1–6; in the communities surrounding the prisons X and Y and in Kern County, California; and in the state of California, USA, 2011

	No.	Mid-year	Cases/100,000
Location	cases	population	population
Prison X	317	4,572	6,934
Prison Y	218	5,738	3,799
Prison 1	3	5,647	53
Prison 2	11	6,389	172
Prison 3	10	5,051	198
Prison 4	10	4,682	214
Prison 5	11	4,938	223
Prison 6	14	5,908	237
Communities			
City of prison X*	172	12,821	1,342
City of prison Y†	53	9,210	575
County of prison X	376	934,875	40
County of prison Y†	131	145,961	90
Kern County	2,568	848,958	302
California*†	4,607	37,559,818	12

*Prison X case and population counts were subtracted from these surrounding communities' case and population counts. †Prison Y case and population counts were subtracted from these surrounding communities' case and population counts.



Figure. Natural log of coccidioidomycosis cases per 100,000 population for prison X, prison Y, Kern County, and the state of California, 2007–2012.

an order of magnitude higher than the 2011 rate for Kern County, and that difference was consistent over the period 2007–2012 (Figure).

In 2011, 16,560 inmates spent at \geq 1 night in prison X or prison Y. Of these, 834 were excluded from the analysis because they had been given a diagnosis of coccidioidomycosis before 2011 or at another institution in 2011; 155 were excluded because they were incarcerated at both institutions during 2011. Of the remaining 15,571 inmates, 6,064 inmates had been incarcerated at prison X and 9,507 at prison Y. In all, 516 had a diagnosis of coccidioidomycosis in 2011, 304 from prison X and 212 from prison Y. The 6,064 inmates of prison X spent 4,037 person-years at the prison, and the 9,507 inmates of prison Y spent 5,464 person-years at the prison. The coccidioidomycosis cases per 100,000 person-years was 7,530 for prison X and 3,880 for prison Y.

Risks for Primary Coccidioidomycosis

Of the 15,571 inmates in the cohort, 6,558 (42%) were Hispanic, 4,380 (28%) were white, and 3,728 (24%) were African American. Asian/Pacific Islanders numbered 128 (1%), of which 36 were identified as Filipino. The remaining 777 (5%) inmates were categorized as other; of these, 183 (1% of the total cohort) were identified as American Indian. The median age of the inmates in the study cohort was 39 years (range 17–89 years; 10th percentile 24 years, 90th percentile 56 years).

In a univariable model, age was significantly associated with primary coccidioidomycosis (OR 1.009, 95% CI 1.002–1.016). Stratified analyses suggested an interaction between age and race/ethnicity in predicting primary

amony minates, Gamornia, OSA, 2011				
Characteristic	No. (%) ill	No. (%) not ill	aOR	95% CI
Prison of incarceration				
Prison X	304 (58.9)	5,760 (38.3)	1.95	1.63–2.34
Prison Y	212 (41.1)	9,295 (61.7)	Referent	
Persons with diabetes	44 (8.5)	1,187 (7.9)	0.87	0.62-1.21
No. days at prison X or Y in 2011	NA	NA	1.007	1.006-1.009
*aOR, adjusted odds ratio; NA, not applicable: num	ber of days incarcerated canno	ot be expressed as a single val	ue for those ill and no	ot ill.

Table 2. Association of primary coccidioidomycosis with prison of incarceration, diabetes status, and the number of days incarcerated among inmates, California, USA, 2011*

coccidioidomycosis. We therefore created a model with variables for prison (prison X or Y), DM status, and the interaction term for age and race/ethnicity. Logistic regression on this model resulted in a significant association with primary coccidioidomycosis for incarceration at prison X (compared with incarceration at prison Y) and with days of incarceration at prison X or Y (Table 2). Also significant were African American and other race/ethnicity at \geq 40 years of age and Hispanic race/ethnicity at \geq 55 years of age. At age 55, African American, Hispanic, and other race/ethnicity were significantly associated with coccidioidomycosis with odds ratios of 2.5 (95% CI 1.7–3.6), 1.6 (95% CI 1.1–2.3), and 2.2 (95% CI 1.2–3.9), respectively, when compared to white persons (Table 3).

Risks for Severe and Disseminated Coccidioidomycosis

A total of 115 inmates had severe coccidioidomycosis, and 115 inmates had disseminated coccidioidomycosis (the equal numbers of severe and disseminated cases was coincidental). There were 474 prison X or Y inmates in whom coccidioidomycosis was diagnosed in 2011 who had not been hospitalized as of April 11, 2013. Logistic regression on a model containing DM status, race/ethnicity, and age resulted in a significant association between severe coccidioidomycosis regression on a model containing DM status, race/ethnicity, and age resulted in a significant association between severe coccidioidomycosis and DM (OR 3.2, 95% CI 1.8–5.8) (Table 4). Logistic regression on a model containing DM status, race/ethnicity, and age resulted in a significant association between disseminated coccidioidomycosis and African American race/ethnicity (OR 1.9, 95% CI 1.1–3.4) (Table 5).

Discussion

For >5 years, 2 California prisons for adult men experienced rates of coccidioidomycosis that exceeded the rate of Kern County by 1–2 orders of magnitude. Calculations of cases per person-years for these prisons for 2011 exceeded the cases-per-midyear population figures, further confirming the high rates of coccidioidomycosis in prisons X and Y. Various theories have been proposed to explain these high rates. During its investigation, CDPH explored the possibility that a change in provider practices in 2005 (e.g., increased testing for coccidioidomycosis) might have resulted in more diagnoses of coccidioidomycosis at prison X but found that no such change had occurred (J. Yuan, unpub. data). In 2013, we explored the possible contribution of a high population turnover (and thus frequent replenishment

of susceptible persons) at prisons X and Y to the high rates, but we found no association (J. Mohle-Boetani, unpub. data). Most inmates at prisons X and prison Y resided in areas to which coccidioidomycosis was not endemic before incarceration, so their susceptibility to the disease is at least a partial explanation for high coccidioidomycosis rates compared to those of the surrounding communities. However, a naïve population does not explain the high odds for acquiring coccidioidomycosis at prison X (independent of age and race) compared to the odds at nearby prison Y. Nor does a naïve population explain the very high rates of coccidioidomycosis in the cities of prisons X and Y compared with their surrounding counties. Because coccidioidomycosis is not uniformly distributed even in the area to which coccidioidomycosis is endemic, the higher rates likely reflect either a higher concentration of ambient spores or a strain that is more pathogenic than strains found elsewhere.

Findings regarding the demographic and clinical risk factors from these analyses include the following: higher rates of primary coccidioidomycosis among persons \geq 40 years of age are associated with certain race/ethnicities other than white; DM is associated with severe pulmonary coccidioidomycosis; and African American race/ethnicity is associated with disseminated coccidioidomycosis. These findings are not new, but have applications beyond the protection of

Table 3. Association of race/ethnicity at 3 age points with primary coccidioidomycosis among a cohort of inmates incarcerated at prison X or Y. California. USA. 2011

Characteristic	aOR*	95% CI
Race/ethnicity, age 25 y		
White	Referent	
African American	1.02	0.65-1.62
Hispanic	0.86	0.57-1.29
Asian/Pacific Islander	0.73	0.21-2.53
Other	1.26	0.65-2.44
Race/ethnicity, age 40 y		
White	Referent	
African American	1.59	1.23-2.06
Hispanic	1.18	0.92-1.51
Asian/Pacific Islander	0.93	0.33-2.58
Other	1.68	1.13–2.49
Race/ethnicity, age 55 y		
White	Referent	
African American	2.48	1.73–3.55
Hispanic	1.62	1.13–2.34
Asian/Pacific Islander	1.18	0.36–3.89
Other	2.23	1.23–3.92

*aOR, adjusted odds ratio.

RESEARCH

2011 2010				
Characteristic	No. (%) cases, n = 115	No. (%) controls, n = 474	aOR	95% CI
Diabetes	25 (21.7)	37 (7.8)	3.2	1.8–5.8
Race/ethnicity		· ·		
White	26 (22.6)	97 (20.4)	(ref)	
African American	41 (35.7)	152 (32.1)	0.97	0.5-1.7
Hispanic	39 (33.9)	189 (39.9)	0.80	0.5-1.4
Asian/Pacific Islander	1 (0.9)	3 (0.6)	1.47	0.1-14.9
Other	8 (7.0)	33 (7.0)	0.88	0.4-2.2
Age	NA	NA	1.001	0.983–1.019
*Cases represent patients requiring ≥10 days of hospitalization for nondisseminated coccidioidomycosis during July 1, 2010–April 11, 2013. Controls				

 Table 4. Multivariable model for the prediction of severe coccidioidomycosis in inmates with coccidioidomycosis, California, USA, 2011–2013*

*Cases represent patients requiring ≥10 days of hospitalization for nondisseminated coccidioidomycosis during July 1, 2010–April 11, 2013. Controls represent patients from prisons X and Y who received a diagnosis of coccidioidomycosis in 2011 but who had not been hospitalized as of April 11, 2013. aOR, adjusted odds ratio; NA, not applicable.

this population. The association of African American race/ ethnicity and disseminated coccidioidomycosis has been reported as early as 1945 (6,10,11) and is generally accepted among researchers and clinicians in the field. However, some authors refute the existence of a predilection for primary disease by race/ethnicity (12), even though an association between African American race/ethnicity and primary coccidioidomycosis has been reported by numerous investigators (13-16). We believe our finding of this association is substantiated because it is based on the study of a population with robust numbers of persons of non-white race/ethnicity. Moreover, inmates of all races/ethnicities are similar in their activities at the institutions, such as the time they spend in the yard. Equal and prompt access to health care for all inmates is a policy of the CCHCS administration (headed by a Federal Receiver) and is monitored by outside agencies. Our other findings with regard to increased risk for coccidioidomycosis and race/ethnicity, for example, that Hispanic inmates (>55 years of age) and those of other races/ethnicities (>40 years of age) are at higher risk than their white couterparts, are also consistent with the literature. Gifford calculated "coccidoidal granuloma" rates of Mexicans to be between those of white and African American persons (17), as is the case for our population. Other race/ethnicity, in which we included those inmates who self-reported as American Indian, and those who self-reported as other, is not clearly defined, but may represent largely mixed-race persons. That inmates were in large enough numbers in the "other" race/ethnicity category to show a significantly increased risk for primary

coccidioidomycosis compared with whites suggests the need to reevaluate the risk for mixed race individuals. Other nonwhite races, specifically Asian/Pacific Islanders, should also be investigated further, because our numbers were insufficient to assess statistically significant associations.

A limitation of our study of primary coccidioidomycosis was that many of the nonill inmates may have been previously infected and, therefore, immune to disease. Because no test for previous infection was available at the time of this study, we could not determine which inmates might have had asymptomatic infection in the past. However, this limitation would bias the findings toward the null, so does not negate our study findings. Another limitation is that inmates infected with coccidioidomycosis in their county of residence or in another prison may have had a diagnosis only after entering prison X or Y and were thus misclassified as exposed at these prisons. Although this could introduce a bias, we do not believe the acquisition of coccidioidomycosis outside of prisons X and Y would have considerable effects on our results. The numbers of cases are large for 2011, and our experience is consistent over many years that prisons X and Y report the highest coccidioidomycosis counts in our system.

On June 24, 2013, after review of the results of our analyses, and in consultation with court monitors and coccidioidomycosis experts, the United States District Court for the Northern District of California issued an order to exclude all African American inmates and inmates with DM from prisons X and Y (18). The order was enacted by CDCR.

Table 5. Multivariable model for	the prediction of disseminated cod	ccidioidomycosis in inmates with c	coccidioidomycos	sis, California,
USA, 2011–2013*	-	-		
Characteristic	No. (%) cases, n = 115	No. (%) controls, n = 474	aOR	95% CI
Diabetes	9 (7.8)	37 (7.8)	0.82	0.4–1.8
Race/ethnicity				
White	19 (16.5)	97 (20.4)	Referent	NA
African American	57 (49.6)	152 (32.1)	1.92	1.1–3.4
Hispanic	32 (27.8)	189 (39.9)	0.90	0.5–1.7
Asian/Pacific Islander	1 (0.9)	3 (0.6)	1.92	0.2-19.7
Other	6 (5.2)	33 (7.0)	0.94	0.3-2.5
Age	NA	NA	1 010	0 992-1 028

*Cases represent patients requiring ≥10 days of hospitalization for nondisseminated coccidioidomycosis during July 1, 2010–April 11, 2013. Controls represent patients from prisons X and Y who received a diagnosis of coccidioidomycosis in 2011 but who had not been hospitalized as of April 11, 2013. aOR, adjusted odds ratio; NA, not applicable.

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Emerging Infectious Diseases Journal Podcasts Think Fungus

Dr. Mary Brandt, a CDC research microbiologist, discusses the impact of fungal infections. Created: 9/23/2013 by National Center for Emerging and Zoonotic Infectious Diseases (NCEZID). Date Released: 9/24/2013. Series Name: Emerging Infectious Diseases.

http://www2c.cdc.gov/podcasts/player.asp?f=8629964

Exhibit 59

THE NEW YORKER

A REPORTER AT LARGE DEATH DUST

The valley-fever menace.

BY DANA GOODYEAR

JANUARY 20, 2014

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Dust storms in the West stir up microscopic spores of the toxic soil-dwelling fungus Coccidioides immitis. The Centers for Disease Control reports a tenfold increase in infections, some of them fatal.

In 1977, the San Joaquin Valley—the swath of agricultural land that runs through the second

agricultural land that runs through central California—was designated a disaster area. Record

-low runoff and scant rainfall had created drought conditions. At the beginning of Christmas week, the weather was normal in Bakersfield, the city at the Valley's southern end, but in the early hours of December 20th a strong wind began to blow from the Great Basin through the Tehachapi Mountains. Hitting the ground on the downslope, it lofted a cloud of loose topsoil and mustard-colored dust into the sky.

The plume rose to five thousand feet; dust blotted out the sun four counties away. Traffic on Highway 5, the state's main artery, stopped. At a certain point, the anemometers failed; the U.S. Geological Survey estimated wind speeds as high as a hundred and ninety-two miles an hour. Windows on houses were sandblasted to paper thinness.

The Tempest from Tehachapi, as one researcher called it, spread dirt over an area the size of Maine. Twenty hours afterward, the dust reached Sacramento, four hundred miles north of Bakersfield, in the form of a murky haze that hung in the air for another day, stinging the eyes and noses of the residents. On the twenty-first, it started raining in Sacramento, which turned the dust to mud, coating the cars and sidewalks, and marked the end of the drought.

Over the next several weeks, Sacramento County recorded more than a hundred cases of coccidioidomycosis, otherwise known as valley fever, or cocci, a disease caused by inhaling the microscopic spores of *Coccidioides immitis*, a soil-dwelling fungus found in Bakersfield. (In the previous twenty years, there had never been more than half a dozen cases a year.) Six of the victims died.

In soil, *C. immitis* exists in chains of barrel-shaped units called arthroconidia; airborne, these fragment easily into lightweight spores. *C. immitis* is adapted to lodge deep: its spores are small enough to reach the end of the bronchioles at the bottom of the lungs. We can breathe them in, but we can't breathe them out. Once in the lung, the spore circles up into a spherule, defined by a chitinous cell wall and filled with a hundred or so baby endospores. When the spherule is sufficiently full, it ruptures, releasing the endospores and stimulating an acute inflammatory response that disrupts blood flow to the tissue and can lead to necrosis. The endospores, each of which will become a new spherule, travel through the blood and lymph systems, allowing the cocci to spread, as one specialist told me, "anywhere it wants." In people with weakened immune systems, cocci can take over.

Every year, there are some hundred and fifty thousand cases. Only forty per cent of people infected are symptomatic, and the signs—fever, cough, exhaustion—can be hard to distinguish from the flu. A small subset of patients will suffer long-term health problems; in fewer still, cocci will disseminate from the lungs into other tissue—skin, bones, and, often fatally, the meninges of the brain. For those with cocci meningitis, the treatment can be brutal. Three times a week, in the hospital, patients are administered an anti-fungal called amphotericin B— "amphoterrible" is how doctors refer to it—with a needle to the base of the skull. To prevent headaches, patients sometimes rest for several hours with their feet elevated above their heads. One patient, a twenty-six-year-old white woman who caught valley fever four years ago, told

me that the medicine made her vomit non-stop on a negative incline. She was temporarily paralyzed, underwent three brain surgeries, and has had twenty-two spinal taps. Not long after her diagnosis, the doctors told her mother to make funeral arrangements. Now they tell her she will be on anti-fungals, funnelled through a shunt in her brain, for the rest of her life.

Cocci is endemic to the desert Southwest—California, Arizona, New Mexico, Nevada, Texas—and to the semi-arid parts of Central and South America. Digging—building, drilling, tilling, clearing—stirs it up, and dry, hot, windy conditions, a regional feature intensified by climate change, disperse it. In recent years, infections have risen dramatically. According to the Centers for Disease Control, from 1998 to 2011 there was a tenfold increase in reported cases; officials there call it a "silent epidemic," far more destructive than had been previously recognized. Its circumscribed range has made it easy for policymakers to ignore. Though it sickens many times more people than West Nile virus, which affects much of the country, including the Northeast, it has received only a small fraction of the funding for research. "The impact of valley fever on its endemic populations is equal to the impact of polio or chicken pox before the vaccines," John Galgiani, an infectious-disease physician who directs the Valley Fever Center for Excellence, at the University of Arizona in Tucson, says. "But chicken pox and polio were worldwide."

In 2012, valley fever was the second-most-reported disease in Arizona; two-thirds of the country's cases occur in the state. There is no vaccine to protect against it and, in the most severe cases, no cure. The population of Phoenix has grown by ten per cent in the past decade, and newcomers have no acquired immunity. The elderly and the immune-compromised—including pregnant women—are most susceptible; for unknown reasons, otherwise healthy African-Americans and Filipinos are disproportionately vulnerable to severe and life-threatening forms of the disease. (In one early study, Filipino men were estimated to be a hundred and seventy-five times as likely as white men to get sick from cocci, and a hundred and ninety-two times as likely to die from it.) But, as one specialist told me, "if you breathe and you're warm-blooded, you can get this."

In California, cocci season peaks in the fall. One day in late September, I went to Bakersfield to see Antje Lauer, an environmental microbiologist who teaches at the state university there. She is forty-six and German, with white-blond hair and pink cheeks covered in pale freckles. The arthroconidia, she told me, are notoriously hard to find in the ground. A spot that tests positive once may subsequently come up negative; a positive site can be separated from a negative one by a matter of yards. Little is known about where the fungus thrives and why. Several years ago, Lauer began trying to discern some pattern to its presence. Initially, she said, "I just drove around Bakersfield and used my intuition. I sampled here, I sampled there." On Coles Levee Road, a desolate strip owned by Los Angeles County, which uses part of it as a sewage dump, she found the fungus nearly every time she looked.

We got in her car and headed west, past almond orchards and derrick fields. Bakersfield High's football team is called the Drillers; sometimes, small oil drills operate in the middle of neighborhoods. Cocci infection has long been considered an occupational hazard for oil workers. "The oil fields sometimes have fences around them," Lauer said. "Occasionally, I've jumped over to get a sample."

Lauer drives with the circulation on and avoids going out on windy days. The mother of a twelve-year-old boy and an eight-year-old girl, she limits her children's outdoor time. "When we moved here, we did soccer," she told me. "We're not doing that anymore." In spite of her efforts, the inside of the car was covered in a golden-brown film. On the dashboard in front of me, a pair of her daughter's footprints smudged the dust.

Lauer's data are not welcome news for communities. "Imagine you owned that house there"—she pointed out the window to an upscale tract home—"and I take a sample and find the valley-fever fungus. Then you want to sell your house. Would you tell the new owner? You would probably not mention it. And if this was published somewhere you would not like it. When I make a map, I will include only those spots where I got permission to sample. But maybe I'll have a second map, an unofficial map, for myself."

Certainly, establishing a link between development and disease would prove politically awkward. Kevin McCarthy, a Republican congressman who represents parts of the San Joaquin Valley and serves as the Majority Whip in the House, is an energetic advocate for valley-fever research: his uncle, a Union 76 gas deliveryman, had a serious case; his mother-in-law's lungs are scarred from an old infection. But he refuses any suggestion that its increased prevalence can be traced to construction. "If you don't build that housing development, we got it because the wind blew," he told me. "You're susceptible to it, regardless, because of the area where we're in. Not having the development is not going to make you less susceptible to it."

The sky was banded: bright blue to blasted white, tallow to orange-gray. "This is a typical day for the fall in Bakersfield," Lauer said. "You can't see the mountains." A tractor idled in a golden cloud. She went on, "But when it gets dark, when the sun goes down, there's a yellowish tint to the sky. It looks really sick." As the landscape grew bleaker—tumbleweeds piled against wire fences—Lauer turned onto Coles Levee Road and stopped the car. There the earth was lunar, crusted and shiny. Salt bushes fanned in a light breeze. The stretch is one of the area's last habitats for endangered burrowing owls and kangaroo rats; Lauer worries that exposing it as a cocci hot spot might jeopardize the animals. "Do you want to get out?" she asked. I didn't.

The chances of anyone's getting infected on Coles Levee Road are low; no one is ever around, certainly not on windy days. But just beyond Lauer's test sites, in a stand of trees, is a popular lake and recreation area. When the wind blows, the spores float there, where no one even knows to be scared.

The first recorded case of cocci involved a soldier in Argentina, who fell ill in 1891. Ulcerated, cauliflowerlike nodes deformed his face, and the doctors who treated him initially thought they'd discovered an infectious form of cancer. (His head, preserved in a jar, is held by the School of Medicine at the University of Buenos Aires, and is brought out for meetings of infectious-disease specialists.) Two years later, doctors in the San Joaquin Valley saw their first case: a field worker from the Azores, blinded by fungating lesions and riddled with abscesses.

The Dust Bowl drove a new population into the way of the disease. One of the first epidemiological studies, conducted in the late thirties by a Stanford-based physician named Charles E. Smith, and using coccidioidin, a skin-test reagent that showed previous exposure, indicated that the illness was most prevalent among people from outside the endemic area field hands who had moved from Oklahoma and Arkansas, seasonal pickers from Mexico, African-Americans employed in the cotton fields, and Filipinos hired to work in the orchards and vineyards. The worse cases tended to occur in people with darker skin.

In 1940, the Army established the Western Flying Training Command, a program with bases in Arizona and the San Joaquin Valley. The region's climate was reputedly healthful—it had attracted tuberculosis patients for more than a century—but a fledgling awareness of valley fever made the military cautious. The Secretary of War asked Smith to monitor the soldiers for signs of the disease. Smith found the conditions alarmingly conducive to the spread of cocci. Reporting in 1958 on his wartime work in the San Joaquin Valley, Smith wrote, "There were vast earth scars where Minter and Gardner Fields were being built. As there was no dust control in operation, the locally generated dust billowed in clouds over the areas."

At Minter, where eleven thousand Second World War pilots were trained, Smith began systematically testing the enlisted men. "The dispensary where coccidioidin testing was performed was a large tent equipped with an electric hotplate and an empty vegetable can for a sterilizer," he wrote. "Dust was ankle deep and swirled in clouds over the fields." Smith and his colleagues began to see clinical cases of coccidioidomycosis among those who had initially tested negative. Others had converted to positive without showing any signs of illness. Those who initially tested positive never got sick: the first real evidence of acquired immunity.

After a soldier with a new infection died of cocci meningitis—in spite of a flulike illness, he had been allowed to continue his regular, physically demanding work—a protocol of bed rest was put in place. Common-sense dust-control measures that had been instituted were given scientific validity by the data. Paving the airstrips and planting grass, and encouraging recruits to exercise in the swimming pool rather than in the yard, dramatically reduced the incidence of valley fever. Still, cocci is said to have been the leading cause of death for pilots in the Western Flying Training Command.

In the fall of 1944, the government built a work camp for German prisoners of war near Minter Field. Germany had already complained under the Geneva Convention about cocci exposure for P.O.W.s in Arizona, and Smith warned that, come summer, there would likely be an outbreak. No measures were taken to mitigate dust in the work camps, though, and by August there were more cocci cases among the prisoners than in the entire U.S. Army.

Prisoners continue to be the most susceptible population. In California, there are many large -scale correctional facilities in and around the San Joaquin Valley, and inmates and prison workers are infected up to a thousand times as often as the general population. Donald Specter, the director of the Prison Law Office, who represents California's prisoners in a class-action suit against the state, says that they are sitting ducks. "They work outside," he told me. "They recreate outside. They're on the exercise yards. They walk around outside."

Prison chat forums are full of outraged stories. "The Valley Fever has NO CURE! My husband went in for 4 unpaid traffic tickets we couldn't afford to pay and now he's coming home with this lifetime lung problem that requires expensive medical treatment," one woman posted on the forum Prison Talk. Another said that her husband had been hospitalized three times because of valley fever. "The last time he was there for 11 weeks and almost died," she wrote. "Now he has a hole in his chest about the size of a deck of cards and it still hasn't healed. That was almost 2 years ago." For African-American and Filipino prisoners, and those with suppressed immune systems due to H.I.V. or diabetes, incarceration in the endemic area can be a death sentence. Between 2006 and 2011, thirty-six prisoners died from cocci, twenty-five of them black.

Two prisons, Pleasant Valley State Prison and Avenal State Prison, stand out for their appalling track records. In 2011, in California over all, there were twelve cases of valley fever for every hundred thousand people; at Avenal, the rate was thirty-eight hundred, and at Pleasant Valley it was more than sixty-eight hundred—more than six per cent. In June, after the Prison Law Office argued, successfully, that the conditions amounted to cruel and unusual punishment, a federal judge ordered the transfer of twenty-six hundred at-risk prisoners from Pleasant Valley and Avenal. The skin test, which would have been able to determine which prisoners had already been exposed, and could therefore safely stay, was unavailable. The manufacturer can't afford the six-hundred-thousand-dollar yearly fee charged by the F.D.A. to bring the product to market. Meanwhile, the state pays twenty-three million dollars a year in hospital costs for inmates with cocci. Already under federal orders to reduce its prison population, because of overcrowding, California can't close Pleasant Valley, Avenal, or the other prisons in the endemic area. It is filling the vacated beds with new bodies—prisoners who don't meet the exclusion criteria but who may or may not get sick.

Unwilling occupants of cocci country are one thing. Booming desert cities are another. George Rutherford, who directs the division of infectious-disease epidemiology at U.C. San Francisco, says, "For every prison in the San Joaquin Valley, there's a retirement home in Tucson where people from Ontario are watching golf courses being scraped out of the sand."

Τ

his past spring, at a conference on valley fever, Antje Lauer, the soil microbiologist, met up with Ramon Guevara, an epidemiologist who works at the L.A. County Department of Health. Guevara has made it a personal mission to educate people about the emergent issue of cocci in his territory. "In L.A. County, we have so many cases, and we have a potentially large problem, because the population is growing," he told me. The highest rate of infection is in Antelope Valley, a rapidly developing outpost of the county that adjoins the southern edge of the San Joaquin Valley. In the past decade, the number of cases there has increased five hundred and forty-five per cent.

Antelope Valley has seen its population double in thirty years, and it has been transformed from a sleepy agricultural backwater to a dense exurb. Fields that once grew alfalfa—a water-intensive crop that has become too expensive to cultivate—now grow houses, in master-planned communities of twenty-five hundred units. New families have moved in, attracted by affordable prices, and many of them are especially vulnerable to the threat of valley fever. The number of African-Americans in the Antelope Valley town of Lancaster has grown to twenty per cent.

Residents and doctors, Guevara says, are dangerously oblivious. A year ago, he was asked to speak to the grieving grandmother of a fifteen-year-old African-American girl who, after being misdiagnosed at two local hospitals, was given proper treatment at Children's Hospital in Los Angeles. By then, it was too late: the disease had progressed irretrievably, and within two weeks the girl died. The grandmother told Guevara that the family never would have moved to the area had they known the risks. "People have no idea it's here," he said. While others have been reluctant to tie development to the incidence of valley fever, Guevara is not. Analyzing U.S. Census data, he found a near-perfect correlation between new privately owned houses and new infections. "We saw an explosion of cases when the housing development exploded," he said.

Lauer and Guevara are both unconventional thinkers, willing to find ways around problems. At the conference, Guevara was struck by Lauer's research on several bacterial antagonists to cocci that she has identified. "She made a solution from those antagonists, sprayed it, and found that cocci doesn't grow," he said. "It's a bit controversial"—soil ecology is fragile—"but it's the kind of thing we have to do to get to the next step."

Lancaster has a large prison complex, and Guevara suspected that there must be cases there, but, perhaps owing to ignorance on the part of the medical staff, very few were being reported. "They said there was only one case there," he said. "No freaking way." He dug up an ordinance stating that land within twenty-five feet of a road is public, and encouraged Lauer to use it as a guideline when sampling. He wanted her to test around the prison and in the new residential neighborhoods nearby.

In addition to vacant land, Antelope Valley has abundant sunshine and regular high winds, which make it a logical place to build alternative-energy infrastructure. With California pledging to get a third of its electricity from renewable sources by 2020, the region is pitching

itself as a hub for the industry. There are some thirty solar projects in development. The mayor of Lancaster is doing the state one better: by 2020, he says, the city will produce more electricity than it consumes. The construction of the solar facilities could have unintended consequences for the environment, though, releasing hazardous dust into the air. "In the afternoon, when the kids come out of school, it's always windy," Lauer says. "When they walk home, they all get exposed."

In 2011, the Department of Energy guaranteed a \$646-million loan to First Solar, an Arizona-based company, to build Antelope Valley Solar Ranch 1, or A.V.S.R. 1. The project, which has since been sold to a Chicago energy provider, will produce enough electricity to power seventy-five thousand homes—a carbon savings, the company says, equivalent to taking thirty thousand cars off the road. Its site, on the outskirts of Lancaster, occupies twenty-three hundred acres of disused agricultural land, scraped clean of tumbleweeds and grasses to make way for 3.7 million solar panels. In more ways than one, solar workers are the drillers of the twenty-first century: twenty-eight came down with valley fever last spring, during the construction of a pair of large solar projects—one of them run by First Solar—in the central California county of San Luis Obispo.

Julie Schuder, who is forty-one and works with developmentally disabled adults, lives eight miles downwind of A.V.S.R. 1. She moved there from Sacramento with her family a couple of years ago, so that her younger child, an aspiring actress, would be close enough to L.A. to audition. "It's windy here," she told me. "We knew that when we moved in." But after construction started the wind changed. "Suddenly, high winds brought sand with them," she said. "We can stand outside and see the dust clouds coming our way from A.V.S.R. 1." The house was new, custom-built only five years ago. Dust came in under the doors and around the window seams to pile in corners, six inches deep; it got into the attic ducts. Her family started wearing masks inside the house. Sometimes they can't see each other across the living room. No one in the family has come down with valley fever, but Schuder is scared for her kids. "The prisoners are being moved, but we can't leave," she said.

First Solar, which uses hydromulch and soil binders to keep its dirt on the ground, denies any role in the Schuders' plight. "The dust problems in the Antelope Valley go back for decades," a representative of the company told me. "They are valley-wide and long precede any solar development in the area. It's an unfortunate fact of life."

In May, a sixty-mile-an-hour dust storm hit Lancaster. The dust made dark fog of the air, and long stretches of the highway were shut down, owing to zero visibility. Masked sheriff's deputies directed traffic. Six people were injured in traffic accidents; one pileup involved twenty cars. At the Schuders' house, the storm deposited huge amounts of silty, light-tan sand. "My husband had to dig the driveway out like it was snow," Schuder said. The sand buried the trees in their back yard, and it buried their fences. Their dog walked right up a dune and off the property.

A few days later, Lauer went to Lancaster to test the area around the prison. At a housing development nearby, she saw kids biking down little earthen mounds they had built, stirring up powder puffs of dust. As she approached a stoplight, a dust cloud came up suddenly from the southwest. Within two seconds, the light was obliterated; after another few seconds, the cloud was gone. "That happens there all the time," she told me. "The soil was really loose. When you go home after sampling, you can taste the dust."

How many spores does it take to get sick? What role does weather play? What is the best way to identify a cocci infection? To treat one? The diagnostics in use were developed in the thirties. Wetting the ground—a practice that, Lauer points out, can cause more cocci to bloom in the following dry season—is still the most commonly used form of remediation. Some of the leading scientists studying cocci are in their eighties, working on problems that troubled them as graduate students.

Vaccine research has been particularly vexed. Fungi are complex organisms, genetically closer to humans than bacteria or viruses are. Charles E. Smith and his colleagues began, in the fifties, working toward a vaccine, which they tested on themselves without adverse side effects. But the first widespread human trials, in Bakersfield in the eighties, failed to prevent people from acquiring the disease. The second attempt, sponsored by the Valley Fever Vaccine Project, a community effort similar to the one that led to the Salk polio vaccine, yielded a substance that couldn't be formulated to F.D.A. standards.

Fluconazole, the medication most commonly prescribed to cocci patients, can cost up to three thousand dollars a month, and doesn't destroy the fungus but merely keeps it in check. At the University of Arizona in Tucson, John Galgiani is attempting to develop a drug that will actually kill it. Trim and avid—a youngster, at sixty-seven—Galgiani is a partner in a company that is trying to ready a molecular byproduct of the bacteria streptomyces, called nikkomycin Z, for the marketplace. It works by destroying the spherule's ability to make chitin, which forms the protective wall; without it, the disease can't progress.

Nikkomycin Z was discovered in the seventies and is still several years and millions of dollars away from being available. A corporate partner could accelerate the time line, but as long as valley fever is perceived as a regional disease the market will likely seem too small for a pharmaceutical company to bother with. "We sometimes talk about wishing a President or former President would get cocci," Galgiani told me. For now, the most likely source of a celebrity case is Major League Baseball, which sends a thousand players to Arizona every spring. In 2012, Ike Davis, a first baseman for the Mets, was given a diagnosis of cocci after an X-ray of his chest showed abnormal markings—like crop circles. The cocci made him dizzy, winded, and weak. "I wasn't able to work, couldn't lift that much or take as many ground balls," he said. The team maintains that the illness didn't contribute to a batting slump he subsequently experienced, but the same is not true for Conor Jackson, a former Diamondback, whose major-league career ended after he was given a diagnosis, in 2009.

The regionality of cocci is only partly to blame for the pace of research. In the lab, cocci presents a serious hazard. Early on, laboratory infections were common; a grad student would open a petri dish and, *whoosh*, millions of spores would go up his nose. (After farm work, lab work was considered to have the greatest occupational risk; at Stanford, a center of valley-fever research, a group of obstetrics students got it, though their classroom was two stories above the cocci lab.) At the county public-health building in Bakersfield, I saw a slide of cocci, recovered from a patient's sputum and fed agar, potato extract, and sugar. Angled in a test tube to reduce surface area and stored in a bio-safety cabinet (air flow, straight up), the slide was covered with a cloudy gray smear, like a spiral galaxy. "Here he is," the lab director said. "Just looks like a little bread mold. He's making arthrospores in there, and if we opened it we'd just get a little invisible cloud of infectious particles." Cocci researchers typically work in Bio Safety Level 3 labs: HEPA-filtered air, seamless floors and ceilings, closed antechamber. Until last year, *C. immitis* was listed as a Select Agent. After culturing it, lab technicians had seven days to report to the Department of Homeland Security that it had been destroyed.

In Tucson, Galgiani took me to see the university's Bio Safety 3 lab. In the corridor, you could hear an autoclave grinding like a hotel icemaker, sterilizing every piece of lab equipment and protective gear that came into contact with the pathogenic agents inside. In addition to cocci, the lab handles monkey pox, mouse pox, West Nile, and chikungunya, a mosquito-borne virus for which there is currently no treatment. On the wall was a group of manometers. Galgiani checked that the pressure in the rooms was lower than that in the hall: a containment strategy.

"In the nineteen-fifties, both the U.S. and the Russians had bio-warfare programs using cocci," he said. "Generals can't control agents that rely on air currents to disperse them, and it was difficult to use the vector precisely, so it fell out of favor. But terrorists don't care about that stuff—all they care about is perception. A single cell can cause disease, and you can genetically modify it to make it more powerful." He held up his wallet to a sensor by the door, then put his finger on a fingerprint reader. "The atrium is as far as we get," he said as we stepped inside. "When you work like this, everything slows down, for safety reasons. It's a harder kind of research to do."

The most promising pathway toward a vaccine may lie with Marc Orbach, a fungal geneticist with a shaggy beard and a shuffly manner, who works in the Bio Safety 3 lab in Tucson. Investigating the genes in cocci that activate when it enters a host, he discovered several that were involved in spherulation. When he removed those genes and inoculated lab mice with the treated cocci, they showed no signs of disease. When he hit them with unmodified cocci, they continued to thrive. Because the vaccine is a live attenuated strain, the process of F.D.A. approval—and public acceptance—will likely be lengthy. If Orbach can secure the funding, he plans to try the vaccine in dogs, which are intensely susceptible and are subject to the more lenient regulations of the U.S.D.A.

At the end of September, Representative McCarthy convened a symposium on valley fever in Bakersfield. Victims filled the seats and crowded around the doors, and were invited to share their stories. "It's eating my bones," a middle-aged African-American man called from the back of the room. "It's coming through my skin. I got laid off, so I'm unemployed. I can't afford my medicine. Caught it working in the oil fields. Who do I talk to, that's what I want to know?"

"Erin Brockovich?" someone in the audience suggested.

McCarthy had mustered considerable political power, including the director of the National Institutes of Health and the director of the C.D.C. That afternoon, the three men announced the most significant public investment in valley-fever research in many years. The money will fund a large clinical trial, to be held in Bakersfield, that will establish something cocci doctors have never had: treatment guidelines based on scientific evidence.

O ne day in November, Ramon Guevara headed to Lancaster to attend a meeting about the solar projects, with, among others, members of the Dustbusters, a task force formed under F.D.R. to combat the problem of fugitive dust. Small and thickset, with jet-black hair, Guevara wore a square-shaped suit and a pair of purple-tinted Ray-Bans. His car was the cleanest I have ever travelled in; the lone sign of use was a sanitizer wipe in the passenger-door pocket. Although he is no longer in the Health Department division that deals with cocci outbreaks, he continues to make trips to the area. The stakes are high for him: a Filipino man, he is genetically susceptible to serious forms of the disease. He does his best to hide his concern. "I can't go in there in a space suit," he said. "That would alarm them." As we dropped into the valley, dry, taupe-colored hills on either side, he said, "If this were the Wild West and I were sheriff of the town, I'd just get a wooden board and say, Beware of Dust. Enter at Your Own Risk."

After the meeting, we went out to see the prison, a barbed-wire complex bordered by a small field of solar panels. Across the street was a housing development called Copper Moon, by KB Homes. The houses were big and beige, stark blocks against a bright-blue sky. A billboard advertised the units, with solar included, "from the low 300's." Guevara looked depressed. "There are cases there," he said quietly. "And see this?" He pointed to an adjacent empty field. "Watch, all this will turn within a couple of years." As we drove away, I caught sight of a sign bearing the city's obsolete slogan: "Lancaster: It's Positively Clear." By mid-December, Lauer had reported preliminary results: the sites around the prison tested positive for cocci.

With the Southwest drying out and heating up, and development pushing deeper into uninhabited terrain, the range of cocci is likely to increase. But other factors may aggravate its impact, too. With more and longer-lived transplant patients and a proliferating set of indications for immunosuppressive drugs, researchers expect to see an acceleration in the number of lifethreatening cases. "As we as a population become more immunosuppressed, we become at higher risk," Tom Chiller, a fungal expert at the C.D.C., said.
Cocci is still overwhelmingly a local disease. But, in the air as in the body, spores can go anywhere they want: in shipping containers to Hong Kong, in donated organs to unwitting transplant patients. Ken Williamson is a forty-four-year-old software designer in Grand Rapids. Twenty years ago, after learning that he had a common auto-immune disorder, he started taking medicine that affects his immune system. Otherwise, he is active and healthy—"an average white guy from Michigan," he says.

This past spring, Williamson heard about a great deal on a used car, a 2000 silver Ford Taurus being sold by a Canadian couple who lived near his in-laws' house, in Phoenix. He bought the car for a thousand dollars, and his father-in-law delivered it to Michigan. The car's ventilation system needed a little work—Williamson had the filters and the fan replaced—but soon he was driving it to his job, and he installed car seats for his two toddlers in the back.

Williamson had given up chocolate for Lent, and on Easter he broke the fast. The next morning, he woke up to find a little pimple on the left corner of his lip: the wages of his indulgence, he thought. But the bump grew and grew. He Googled "big sore on lip" and, horrified, went to a doctor, who gave him cold-sore medication and, later, antibiotics. The sore continued to grow, until it was rough and as big as a nickel. His friends nicknamed it Lumpy. At work, he covered it with a Band-Aid; he tried concealing it with his wife's makeup before going to church. "It looked like I got hit by a bullet," he told me. "The skin was bright red and thickened, and it would weep a pinkish clear liquid." After a couple of months, he went to a dermatologist, who told him that he had cocci.

Treatment with fluconazole caused Williamson's lesion to shrink and eventually all but vanish, and no new lesions have appeared, nor has he had the lumbar back pain and the headaches that would indicate dissemination to the spine and the brain. He feels that he got lucky, but his treatment is ongoing. The infectious-disease specialist who is treating him said, "I have a hard time relaying to him how concerned I still am." Williamson sold the Taurus, without disclosing that it was the suspected source of infection. "We talked a lot about it," the doctor told me. "We were going to call Click and Clack at 'Car Talk.' The car itself is not dangerous, unless the buyer is immune-compromised. Which is then true for any car sold to anyone out of Arizona." \blacklozenge

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Monica Almeida/The New York Times The disease puts Todd Schaefer in pain every day.



Monica Almeida/The New York Times Doctors are unsure how Kaden Watson, 8, was infected with it.

Enlarge This Image



Monica Almeida/The New York Times

Some inmates at Avenal State Prison are being transferred because of a risk of valley fever.



Monica Almeida/The New York Times Mr. Schaefer, 48, has had serious heart problems, and can no longer drink the wine he and his wife, Tammy, produce.





Monica Almeida/The New York Times Ms. Ludy takes several pills a day to treat a serious case of cocci.

and Arizona. Although most people exposed to the fungus do not fall ill, about 160 die from it each year, with thousands more facing years of disability and surgery. About 9 percent of those infected will contract pneumonia and 1 percent will experience serious complications beyond the lungs.

The disease is named for the San Joaquin Valley, a cocci hot spot, where the same soil that produces the state's agricultural bounty can turn traitorous. The "silent epidemic" became less silent last week when a federal judge ordered the state to transfer about 2,600 vulnerable inmates — including some with H.I.V. — out of two of the valley's eight state prisons, about 90 miles north of here. In 2011, those prisons, Avenal and Pleasant Valley, produced 535 of the 640 reported inmate cocci cases, and throughout the system, yearly costs for hospitalization for cocci exceed \$23 million.

The transfer, affecting about a third of the two prisons' combined population, is to be completed in 90 days, a challenge to a prison system already contending with a federal mandate to reduce overcrowding. Jose Antonio Diaz, 44, who has diabetes and was recently relocated to Avenal, is feeling "very scared of catching it," said his wife, Suzanne Moreno.

Advocates for prisoners have criticized state agencies for not moving the inmates sooner. "If this were a factory, a public university or a hotel — anything except a prison they would shut these two places down," said Donald Specter, the executive director of the <u>Prison Law Office</u>, which provides free legal assistance to inmates.

The pending transfer has underscored the complexities and mysteries of a disease that continues to baffle physicians and scientists. In Arizona, a study from the <u>Department of</u> <u>Health Services</u> showed a 25 percent risk of African-Americans with newly diagnosed valley fever developing complications, compared with 6 percent of whites.

"The working hypothesis has to do with genetic susceptibility, probably the interrelationships of genes involved in the immune system," said Dr. John N. Galgiani, a professor at the University of Arizona and the director of the <u>Valley Fever Center for Excellence</u>, founded in 1996. "But which ones? We're clueless."

Kandis Watson, whose son Kaden, 8, almost died, had a gut feeling that "something was not right," she said, when Kaden began feeling sick two years ago. The pediatrician prescribed antibiotics, but Kaden's health deteriorated, with a golf ball-size mass developing at the base of his neck. The infection enveloped Kaden's chest, narrowing his trachea.

Kaden was essentially breathing through an opening the size of a straw, said Dr. James M. McCarty, the medical director of pediatric infectious diseases at <u>Children's Hospital</u> <u>Central California</u> in Madera, where Kaden spent six months. Today the boy is back to his mischievous self, surreptitiously placing a green plastic lizard in his mother's hair.

But how he contracted valley fever is still guesswork. "I think he got it being a boy, digging in the dirt," Mrs. Watson said.



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Kern County, where Bakersfield is located, had more than 1,800 reported cases last year. At <u>Kern Medical Center</u>, Dr. Royce H. Johnson and his colleagues have a roster of nearly 2,000 patients. Many, like Mr. Klorman, have life-threatening cocci meningitis.

"I got a bad break," said Mr. Klorman, who is known as Joe. Until illness forced his retirement, he preferred a squad car to a desk job. Now he travels four hours round trip three times a week so Dr. Johnson can inject a powerful antifungal drug into his spinal fluid. In other patients, the disease has been known to eat away ribs and vertebrae.

"It destroys lives," said Dr. Johnson, whose daughter contracted a mild form. "Divorces, lost jobs and bankruptcy are incredibly common, not to mention psychological dislocation."

Once athletic, Deandre Zillendor, 38, dropped to 145 pounds from 220 in two weeks, and lesions erupted on his face and body. "You keep it forever, like luggage," he said of the disease.

Todd Schaefer, 48, who produces award-winning pinot noirs in Paso Robles, was told by his doctors that he had 10 years to live. That was 10 years ago. But valley fever has disseminated into his spinal column and brain, and his conversation is interrupted by grimaces of pain. Ruggedly handsome, he still outwardly resembles the archetype of the California good life. But Mr. Schaefer has had a stroke, a hole in his lung, two serious heart episodes and relapses that "put me on the edge of life," he said.

He believes he got infected with valley fever atop a tractor during the construction of Pacific Coast Vineyards, which he runs with his wife, Tammy. One doctor initially suggested bed rest, chicken soup and cranberry juice.

Today Mr. Schaefer can no longer drink wine, and he begins every morning retching. "I told her to leave me," he said at one low point, of his wife, who is 37. "She's too young, too beautiful."

Dr. Benjamin Park, a medical officer with the C.D.C., said that the numbers of cases are "under-estimates" because some states do not require public reporting. They include Texas, where valley fever is endemic along the Rio Grande. In New Mexico, a 2010 survey of doctors and clinics by the state's public health department revealed that 69 percent of clinicians did not consider it in patients with respiratory problems.

Numbers spike when rainfall is followed by dry spells. Many scientists believe that the uptick in infections is related to changing climate patterns. Kenneth K. Komatsu, the state epidemiologist for Arizona, where 13,000 cases were reported last year, said that another factor may be urban sprawl: "digging up rural areas where valley fever is growing in the soil," he said.

In Avenal, citizens have become activists, looking into possible environmental factors, including a regional landfill that accepts construction waste. Three of the four children of James McGee, a teacher, have contracted the disease, including Marivi, 17, who was found convulsing in the ladies' room at school. Dr. McCarty of Children's Hospital is seeing an increasing number of children from Avenal.

Valley fever was a familiar presence during the Dust Bowl, and in Japanese internment camps throughout the arid West. Yet there is still no cure, and research on a fungicide and a potential vaccine have been stalled by financing issues. One company, Nielsen Biosciences Inc., has developed a skin test to identify cocci but has not yet been able to make it financially viable.

Part of the difficulty is that cocci is "a hundred different diseases," Dr. Johnson said, depending on where in the body it nests. His patients include farm workers, oil field workers and construction workers.

One of his patients, Barbara Ludy, 61, had a job that involved taking care of a man who is quadriplegic. She was strong enough to lift his 175-pound frame, plus his wheelchair, into a van. Cocci meningitis affected her ability to think, to remember, to walk, to live

independently. When her weight dropped to 71 pounds, her distraught daughters went to Goodwill to buy their mother size zero clothes.						
One daughter, Jennifer Gillet, now takes care of her mother full time. Ms. Ludy is recuperating, slowly. And things are looking up: She is now a size 10.						
A version of this article appeared in print on July 5, 2013, on pa Without a Cure Spreads Quietly in the West.	ge A12 of the New York edition with the headline: A Disease					
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U.S. Droughts Will Be the Worst in 1,000 Years

The Southwest and central Great Plains will dry out even more than previously thought

February 12, 2015 | By Mark Fischetti |

SAN FRANCISCO—Several independent studies in recent years have predicted that the American Southwest and central Great Plains will experience extensive droughts in the second half of this century, and that advancing climate change will exacerbate those droughts. But a new analysis released today says the drying will be even more extreme than previously predicted—the worst in nearly 1,000 years. Some time between 2050 and 2100, extended drought conditions in both regions will become

more severe than the megadroughts of the 12th and 13th centuries. Tree rings and other evidence indicate that those medieval dry periods exceeded anything seen since, across the land we know today as the continental U.S.

The analysis "shows how exceptional future droughts will be," says Benjamin Cook, a research scientist at the NASA Goddard Institute for Space Studies in New York City and lead author of the study. The work was published online today in the inaugural edition of *Science Advances* and was released simultaneously at the American Association for the Advancement of Science annual meeting here.

Cook and his colleagues reached their conclusion by comparing 17 different

computer projections of 21st century climate with drought records of the past millennium, notably data in the North American Drought Atlas. (The atlas is based



The dryness of soil, basically measured as a balance between precipitation and evaporation, is predicted to drop steadily in the U.S. central Great Plains and Southwest, during the second half of this century.

Credit: Unprecedented 21st Century Drought Risk in the American Southwest and Central Plains. Benjamin Cook et. al in Science Advances, Feb. 12, 2014.

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on extensive tree-ring studies conducted by Cook's father, Edward, a researcher at Columbia University's Lamont-Doherty Earth Observatory.) The models consistently demonstrated drought worse than at any time during that epoch, and worse than the current drought out West, which has prevailed for 11 of the previous 14 years, according to the U.S. Drought Monitor. In 2014 the drought cost California more than \$2 billion in agricultural loses alone, according to the University of California, Davis.

The models also revealed that the drying in the Southwest would result from a combination of less rain and greater soil evaporation due to higher temperatures. They were not as conclusive about less rain in the central Great Plains but all showed more evaporation there. "Even where rain may not change much, greater evaporation will dry out the soils," Cook says.

Drought, of course, means more stress on crops and possibly greater water shortages in urban areas. "We have strategies today to deal with drought—develop more drought-resistant crops, use more groundwater," Cook says. "But if future droughts will be much more severe, the question is whether we can extend those strategies or if we need new ones." Municipal planners and legislators may have a tough challenge, and groundwater is a finite resource. "Our water laws and sharing agreements are very convoluted," Cook notes. Untangling them in order to make conservation measures practical and equitable "could become a wicked problem."

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The next step for Cook's group will be to try to determine when the transition to severe drought will begin: in the next 20 years, the next 50 years? We're still uncertain about that," he says.

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CLIMATOLOGY

Unprecedented 21st century drought risk in the American Southwest and Central Plains

Benjamin I. Cook,^{1,2}* Toby R. Ault,³ Jason E. Smerdon²

In the Southwest and Central Plains of Western North America, climate change is expected to increase drought severity in the coming decades. These regions nevertheless experienced extended Medieval-era droughts that were more persistent than any historical event, providing crucial targets in the paleoclimate record for benchmarking the severity of future drought risks. We use an empirical drought reconstruction and three soil moisture metrics from 17 state-of-the-art general circulation models to show that these models project significantly drier conditions in the later half of the 21st century compared to the 20th century and earlier paleoclimatic intervals. This desiccation is consistent across most of the models and moisture balance variables, indicating a coherent and robust drying response to warming despite the diversity of models and metrics analyzed. Notably, future drought risk will likely exceed even the driest centuries of the Medieval Climate Anomaly (1100–1300 CE) in both moderate (RCP 4.5) and high (RCP 8.5) future emissions scenarios, leading to unprecedented drought conditions during the last millennium.

INTRODUCTION

Millennial-length hydroclimate reconstructions over Western North America (1–4) feature notable periods of extensive and persistent Medieval-era droughts. Such "megadrought" events exceeded the duration of any drought observed during the historical record and had profound impacts on regional societies and ecosystems (2, 5, 6). These past droughts illustrate the relatively narrow view of hydroclimate variability captured by the observational record, even as recent extreme events (7–9) highlighted concerns that global warming may be contributing to contemporary droughts (10, 11) and will amplify drought severity in the future (11–15). A comprehensive understanding of global warming and 21st century drought therefore requires placing projected hydroclimate trends within the context of drought variability over much longer time scales (16, 17). This would also allow us to establish the potential risk (that is, likelihood of occurrence) of future conditions matching or exceeding the severest droughts of the last millennium.

Quantitatively comparing 21st century drought projections from general circulation models (GCMs) to the paleo-record is nevertheless a significant technical challenge. Most GCMs provide soil moisture diagnostics, but their land surface models often vary widely in terms of parameterizations and complexity (for example, soil layering and vegetation). There are few large-scale soil moisture measurements that can be easily compared to modeled soil moisture, and none for intervals longer than the satellite record. Instead, drought is typically monitored in the real world using offline models or indices that can be estimated from more widely measured data, such as temperature and precipitation.

One common metric is the Palmer Drought Severity Index (PDSI) (18), widely used for drought monitoring and as a target variable for proxy-based reconstructions (1, 2). PDSI is a locally normalized index of soil moisture availability, calculated from the balance of moisture supply (precipitation) and demand (evapotranspiration). Because PDSI is normalized on the basis of local average moisture conditions, it can be

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used to compare variability and trends in drought across regions. Average moisture conditions (relative to a defined baseline) are denoted by PDSI = 0; negative PDSI values indicate drier than average conditions (droughts), and positive PDSI values indicate wetter than normal conditions (pluvials). PDSI is easily calculated from GCMs using variables from the atmosphere portion of the model (for example, precipitation, temperature, and humidity) and can be compared directly to observations. However, whereas recent work has demonstrated that PDSI is able to accurately reflect the surface moisture balance in GCMs (19), other studies have highlighted concerns that PDSI may overestimate 21st century drying because of its relatively simple soil moisture accounting and lack of direct CO2 effects that are expected to reduce evaporative losses (12, 20, 21). We circumvent these concerns by using a more physically based version of PDSI (13) (based on the Penman-Monteith potential evapotranspiration formulation) in conjunction with soil moisture from the GCMs to demonstrate robust drought responses to climate change in the Central Plains (105°W-92°W, 32°N-46°N) and the Southwest (125°W-105°W, 32°N-41°N) regions of Western North America.

RESULTS

We calculate summer season [June-July-August (JJA)] PDSI and integrated soil moisture from the surface to ~30-cm (SM-30cm) and ~2- to 3-m (SM-2m) depths from 17 GCMs (tables S1 and S2) in phase 5 of the Coupled Model Intercomparison Project (CMIP5) database (22). We focus our analyses and presentation on the RCP 8.5 "businessas-usual" high emissions scenario, designed to yield an approximate top-of-atmosphere radiative imbalance of +8.5 W m⁻² by 2100. We also conduct the same analyses for a more moderate emissions scenario (RCP 4.5).

Over the calibration interval (1931–1990), the PDSI distributions from the models are statistically indistinguishable from the North American Drought Atlas (NADA) (two-sided Kolmogorov-Smirnov test, $p \ge 0.05$), although there are some significant deviations in some models during other historical intervals. North American drought variability during the historical period in both models and observations is driven primarily by ocean-atmosphere teleconnections,

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internal variability in the climate system that is likely to not be either consistent across models or congruent in time between the observations and models, and so such disagreements are unsurprising. In the multimodel mean, all three moisture balance metrics show markedly consistent drying during the later half of the 21st century (2050–2099) (Fig. 1; see figs. S1 to S4 for individual models). Drying in the Southwest is more severe (RCP 8.5: PDSI = -2.31, SM-30cm = -2.08, SM-2m = -2.98) than that over the Central Plains (RCP 8.5: PDSI = -1.89, SM-30cm = -1.20, SM-2m = -1.17). In both regions, the consistent cross-model drying trends are driven primarily by the forced response to increased greenhouse gas concentrations (13), rather than by any fundamental shift in ocean-atmosphere dynamics [indeed, there is a wide disparity across models regarding the strength and fidelity of the simulated teleconnections over North America (23)]. In the Southwest, this forcing manifests as both a reduction in cold season precipitation (24) and an increase in potential evapotranspiration (that is, evaporative demand increases in a warmer atmosphere) (13, 25) acting in concert to reduce soil moisture. Even though cold season precipitation is actually expected to increase over parts of California in our Southwest region (24, 26), the increase in evaporative demand is still sufficient to drive a net reduction in soil moisture. Over the Central Plains, precipitation responses during the spring and summer seasons (the main





(125°W–105°W, 32°N–41°N). Bottom: Regional average time series of the summer season moisture balance metrics from the NADA and CMIP5 models. The observational NADA PDSI series (brown) is smoothed using a 50-year loess spline to emphasize the low-frequency variability in the paleo-record. Model time series (PDSI, SM-30cm, and SM-2m) are the multimodel means averaged across the 17 CMIP5 models, and the gray shaded area is the multimodel interquartile range for model PDSI.

seasons of moisture supply) are less consistent across models, and the drying is driven primarily by the increased evaporative demand. Indeed, this increase in potential evapotranspiration is one of the dominant drivers of global drought trends in the late 21st century, and previous work with the CMIP5 archive demonstrated that the increased evaporative demand is likely to be sufficient to overcome precipitation increases in many regions (*13*). In the more moderate emissions scenario (RCP 4.5), both the Southwest (RCP 4.5: PDSI = -1.49, SM-30cm = -1.63, SM-2m = -2.39) and Central Plains (RCP 4.5: PDSI = -1.21, SM-30cm = -0.89, SM-2m = -1.17) still experience significant, although more modest, drying into the future, as expected (fig. S5).

In both regions, the model-derived PDSI closely tracks the two soil moisture metrics (figs. S6 and S7), correlating significantly for most models and model intervals (figs. S8 and S9). Over the historical simulation, average model correlations (Pearson's r) between PDSI and SM-30cm are +0.86 and +0.85 for the Central Plains and Southwest, respectively. Correlations weaken very slightly for PDSI and SM-2m: +0.84 (Central Plains) and +0.83 (Southwest). The correlations

remain strong into the 21st century, even as PDSI and the soil moisture variables occasionally diverge in terms of long-term trends. There is no evidence, however, for systematic differences between the PDSI and modeled soil moisture across the model ensemble. For example, whereas the PDSI trends are drier than the soil moisture condition over the Southwest in the ACCESS1-0 model, PDSI is actually less dry than the soil moisture in the MIROC-ESM and NorESM1-M simulations over the same region (fig. S7). These outlier observations, showing no consistent bias, in conjunction with the fact that the overall comparison between PDSI and modeled soil moisture is markedly consistent, provide mutually consistent support for the characterization of surface moisture balance by these metrics in the model projections.

For estimates of observed drought variability over the last millennium (1000–2005), we use data from the NADA, a tree-ring based reconstruction of JJA PDSI. Comparisons between the NADA and model moisture are shown in the bottom panels of Fig. 1. In the NADA, both the Central Plains (Fig. 2) and Southwest (Fig. 3) are drier during the Medieval megadrought interval (1100–1300 CE) than either the Little



Fig. 2. Interquartile range of PDSI and soil moisture from the NADA and CMIP5 GCMs, calculated over various time intervals for the Central Plains. The groups of three stacked bars at the top of each column are from the NADA PDSI: 1100–1300 (the time of the Medievalera megadroughts, brown), 1501–1849 (the Little Ice Age, blue), and 1850–2005 (the historical period, green). Purple and red bars are for

the modeled historical period (1850–2005) and late 21st century (2050–2099) period, respectively. Red dots indicate model 21st century drought projections that are significantly drier than the model simulated historical periods. Gray dots indicate model 21st century drought projections that are significantly drier than the Medieval-era megadrought period in the NADA.

Ice Age (1501-1849) or historical periods (1850-2005). For nearly all models, the 21st century projections under the RCP 8.5 scenario reveal dramatic shifts toward drier conditions. Most models (indicated with a red dot) are significantly drier (one-sided Kolmogorov-Smirnov test, $p \leq$ 0.05) in the latter part of the 21st century (2050-2099) than during their modeled historical intervals (1850-2005). Strikingly, shifts in projected drying are similarly significant in most models when measured against the driest and most extreme megadrought period of the NADA from 1100 to 1300 CE (gray dots). Results are similar for the more moderate RCP 4.5 emissions scenario (figs. S10 and S11), which still indicates widespread drying, albeit at a reduced magnitude for many models. Although there is some spread across the models and metrics, only two models project wetter conditions in RCP 8.5. In the Central Plains, SM-2m is wetter in ACCESS1-3, with little change in SM-30cm and slightly wetter conditions in PDSI. In the Southwest, CanESM2 projects markedly wetter SM-2m conditions; PDSI in the same model is slightly wetter, whereas SM-30cm is significantly drier.

When the RCP 8.5 multimodel ensemble is pooled together (Fig. 4), projected changes in the Central Plains and Southwest (2050–2099 CE) for all three moisture balance metrics are significantly drier compared to both the modern model interval (1850–2005 CE) and 1100–1300 CE in the NADA (one-sided Kolmogorov-Smirnov test, $p \le 0.05$). In the case of SM-2m in the Southwest, the density function is somewhat

flattened, with an elongated right (wet) tail. This distortion arises from the disproportionate contribution to the density function from the wetting in the five CanESM2 ensemble members. Even with this contribution, however, the SM-2m drying in the multimodel ensemble is still significant. Results are nearly identical for the pooled RCP 4.5 multimodel ensemble (fig. S12), which still indicates a significantly drier late 21st century compared to either the historical interval or Medieval megadrought period.

With this shift in the full hydroclimate distribution, the risk of decadal or multidecadal drought occurrences increases substantially. We calculated the risk (17) of decadal or multidecadal drought occurrences for two periods in our multimodel ensemble: 1950–2000 and 2050– 2099 (Fig. 5). During the historical period, the risk of a multidecadal megadrought is quite small: <12% for both regions and all moisture metrics. Under RCP 8.5, however, there is \geq 80% chance of a multidecadal drought during 2050–2099 for PDSI and SM-30cm in the Central Plains and for all three moisture metrics in the Southwest. Drought risk is reduced slightly in RCP 4.5 (fig. S13), with largest reductions in multidecadal drought risk over the Central Plains. Ultimately, the consistency of our results suggests an exceptionally high risk of a multidecadal megadrought occurring over the Central Plains and Southwest regions during the late 21st century, a level of aridity exceeding even the persistent megadroughts that characterized the Medieval era.



Fig. 3. Same as Fig. 2, but for the Southwest.

DISCUSSION

Within the body of literature investigating North American hydroclimate, analyses of drought variability in the historical and paleoclimate records are often separate from discussions of global warming-induced changes in future hydroclimate. This disconnection has traditionally made it difficult to place future drought projections within the context of observed and reconstructed natural hydroclimate variability. Here,



Fig. 4. Kernel density functions of PDSI, SM-30cm, and SM-2m for the Central Plains and Southwest, calculated from the NADA and the GCMs. The NADA distribution (brown shading) is from 1100–1300 CE, the timing of the medieval megadroughts. Blue

lines represent model distributions calculated from all years from all models pooled over the historical scenario (1850–2005 CE). Red lines are for all model years pooled from the RCP 8.5 scenario (2050–2099 CE).



Fig. 5. Risk (percent chance of occurrence) of decadal (11-year) and multidecadal (35-year) drought, calculated from the multimodel ensemble for PDSI, SM-30cm, and SM-2m. Risk calculations are conducted for two separate model intervals: 1950–2000 (historical scenario) and 2050–2099 (RCP 8.5). Results for the Central Plains are in the top row, and those for the Southwest are in the bottom row.

we have demonstrated that the mean state of drought in the late 21st century over the Central Plains and Southwest will likely exceed even the most severe megadrought periods of the Medieval era in both high and moderate future emissions scenarios, representing an unprecedented fundamental climate shift with respect to the last millennium. Notably, the drying in our assessment is robust across models and moisture balance metrics. Our analysis thus contrasts sharply with the recent emphasis on uncertainty about drought projections for these regions (21, 27), including the most recent Intergovernmental Panel on Climate Change assessment report (28).

Our results point to a remarkably drier future that falls far outside the contemporary experience of natural and human systems in Western North America, conditions that may present a substantial challenge to adaptation. Human populations in this region, and their associated water resources demands, have been increasing rapidly in recent decades, and these trends are expected to continue for years to come (29). Future droughts will occur in a significantly warmer world with higher temperatures than recent historical events, conditions that are likely to be a major added stress on both natural ecosystems (30) and agriculture (31). And, perhaps most importantly for adaptation, recent years have witnessed the widespread depletion of nonrenewable groundwater reservoirs (32, 33), resources that have allowed people to mitigate the impacts of naturally occurring droughts. In some cases, these losses have even exceeded the capacity of Lake Mead and Lake Powell, the two major surface reservoirs in the region (34, 35). Combined with the likelihood of a much drier future and increased demand, the loss of groundwater and higher temperatures will likely exacerbate the impacts of future droughts, presenting a major adaptation challenge for managing ecological and anthropogenic water needs in the region.

Estimates of drought variability over the historical period and the last millennium used the latest version of the NADA (1), a tree ring–based reconstruction of summer season (JJA) PDSI. All statistics were based on regional PDSI averages over the Central Plains (105°W–92°W, 32°N–46°N) and the Southwest (125°W–105°W, 32°N–41°N). We restricted our analysis to 1000–2005 CE; before 1000 CE, the quality of the reconstruction in these regions declines.

The 21st century drought projections used output from GCM simulations in the CMIP5 database (22) (table S1). All models represent one or more continuous ensemble members from the historical (1850–2005 CE) and RCP 4.5 (15 models available) and 8.5 (17 models available) emissions scenarios (2006–2099 CE). We used the same methodology as in (13) to calculate model PDSI for the full interval (1850–2099 CE), using the Penman-Monteith formulation of potential evapotranspiration. The baseline period for calibrating and standardizing the model PDSI anomalies was 1931–1990 CE, the same baseline period as the NADA PDSI. Negative model PDSI values therefore indicate drier conditions than the average for 1931–1990.

To augment the model PDSI calculations and comparisons with observed drought variability in the NADA, we also calculated standardized soil moisture metrics from the GCMs for two depths: ~30 cm (SM-30cm) and ~2 to 3 m (SM-2m) (table S2).

For these soil moisture metrics, the total soil moisture from the surface was integrated to these depths and averaged over JJA. At each grid cell, we then standardized SM-30cm and SM-2m to match the same mean and interannual SD for the model PDSI over 1931–1990. This allows for direct comparison of variability and trends between model PDSI and model soil moisture and between the model metrics (PDSI, SM-30cm, and SM-2m) and the NADA (PDSI) while still independently preserving any low-frequency variability or trends in the soil moisture that may be distinct from the PDSI calculation. The soil moisture standardization does not impose any artificial constraints that would force the three metrics to agree in terms of variability or future trends, allowing SM-30cm and SM-2m to be used as indicators of drought largely independent of PDSI.

Risk of decadal and multidecadal megadrought occurrence in the multimodel ensemble is estimated from 1000 Monte Carlo realizations of each moisture balance metric (PDSI, SM-30cm, and SM-2m), as in (*17*). This method entails estimating the mean and SD of a given drought index (for example, PDSI or soil moisture) over a reference period (1901–2000), then subtracting that mean and SD from the full record (1850–2100) to produce a modified z score. The differences between the reference mean and SD are then used to conduct (white noise) Monte Carlo simulations of the future (2050–2100) to emulate the statistics of that era. The fraction of Monte Carlo realizations exhibiting a decadal or multidecadal drought are then calculated from each Monte Carlo simulation of each experiment in both regions considered here. Finally, these risks from each model are averaged together to yield the overall risk estimates reported here. Additional details on the methodology can be found in (*17*).

SUPPLEMENTARY MATERIALS

Supplementary material for this article is available at http://advances.sciencemag.org Fig. S1. For the individual models, ensemble mean soil moisture balance (PDSI, SM-30cm, and SM-2m) for 2050–2099: ACCESS1.0. ACCESS1.3. BCC-CSM1.1. and CanESM2.

Fig. S2. Same as fig. S1, but for CCSM4, CESM1-BGC, CESM-CAM5, and CNRM-CM5.

Fig. S3. Same as fig. S1, but for GFDL-CM3, GFDL-ESM2G, GFDL-ESM2M, and GISS-E2-R.

Fig. S4. Same as fig. S1, but for INMCM4.0,MIROC-ESM, MIROC-ESM-CHEM, NorESM1-M, and NorESM1-ME models.

Fig. S5. Same as Fig. 1, but for the RCP 4.5 scenario.

Fig. S6. Regional average moisture balance time series (historical + RCP 8.5) from the first ensemble member of each model over the Central Plains.

Fig. S7. Same as fig. S6, but for the Southwest.

Fig. S8. Pearson's correlation coefficients for three time intervals from the models over the Central Plains: PDSI versus SM-30cm, PDSI versus SM-2m, and SM-30cm versus SM-2m.

Fig. S9. Same as fig. S8, but for the Southwest.

Fig. S10. Same as Fig. 2, but for the RCP 4.5 scenario.

Fig. S11. Same as Fig. 3, but for the RCP 4.5 scenario.

Fig. S12. Same as Fig.4, but for the RCP 4.5 scenario.

Fig. S13. Same as Fig. 5, but for the RCP 4.5 scenario.

Table S1. Continuous model ensembles from the CMIP5 experiments (1850–2099, historical + RCP8.5 scenario) used in this analysis, including the modeling center or group that supplied the output, the number of ensemble members, and the approximate spatial resolution. Table S2. The number of soil layers integrated for our CMIP5 soil moisture metrics (SM-30cm

and SM-2m), and the approximate depth of the bottom soil layer.

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The Cliff Palace in Mesa Verde National Park in Colorado was abandoned hundreds of years ago, probably because of a severe drought. Scientists now predict that the region could experience an even worse megadrought in the latter half of the 21st century. (Christian Heinrich/imageBROKER/Corbis)

The Western U.S. Could Soon Face the Worst Megadrought in a Millennium

Climate models predict that the region will be drier than the droughts that likely caused ancient Native Americans to abandon their pueblo cities

By Sarah Zielinski smithsonian.com February 12, 2015 2:00PM

Without dramatic cuts to greenhouse gas emissions, the southwestern U.S. and Central Plains will suffer persistent drought in the latter half of the 21st century that would exceed even the worst droughts seen a millennium ago, says a new study. Those hot, dry conditions likely caused ancient Native Americans known as the Anasazi to abandon the pueblo cities at Mesa Verde and Chaco Canyon.

The results, appearing today in the new journal *Science Advances*, suggest that the impacts of future megadroughts on modern society—including the agriculture and energy sectors—could be severe.

"The future looks fairly bleak, and it's a future that all of us ... need to pay attention to," Marcia McNutt, editor-in-chief of the *Science* family of journals, said today at a press conference.

For the last decade, studies have been predicting that as temperatures rise due to anthropogenic climate change, the U.S. West faces an increasingly dry future. For instance, researchers reported last year in the *Journal of Climate* that the Southwest faced a 20 to 50 percent chance in the next century of a megadrought—a drought lasting 35 years or more.

The new study predicts an even bleaker future, showing "more convincingly than ever before that unchecked climate change will drive unprecedented drying across much of the United States—even eclipsing the huge megadroughts of medieval times," says Jonathan Overpeck, co-director of the Institute of the Environment at the University of Arizona, who was not involved in the study.

To come up with their new predictions, Toby Ault of Cornell University and Benjamin Cook and Jason Smerdon of Columbia University's Lamont-Doherty Earth Observatory began with a record of climate from the past thousand years derived from tree rings. The width of a tree ring changes depending on how much moisture the tree receives in a given year. The team then used 17 different climate models to develop drought predictions for the next century for the Southwest and Central Plains under two scenarios: one in which greenhouse gas emissions continue unabated and a second in which they are moderated.



Caption: The brown line reflects changes in summer moisture as recorded in tree ring data, with negative numbers reflecting drier times. Colored lines show what climate models predict for the latter half of the 21st century. (Cook et al., Science Advances, 2015)

The models consistently predicted that the U.S. West is headed for drier times. The risk of a decades-long drought was high even under the moderate emissions scenario. With high emissions continuing, though, the risk was even greater—80 percent or more in the Southwest and at least 70 percent in the Central Plains.

"These future changes that we are seeing are likely to be more persistent than past megadroughts," which occurred in a more stable past, Smerdon says.

The bad droughts of the past in this region have historically been driven by persistent La Niña conditions, when there are unusually cold waters in the Pacific. But the megadroughts of the not-too-distant future will be triggered by increased greenhouse gas concentrations in the atmosphere, the report finds. The resulting changes to the climate will make these regions warmer, so that both the Southwest and the Central Plains will experience more evaporation, which will dry out the land. The Southwest will also experience reductions in winter precipitation.

"What's important to realize is that continued warming is pretty much a sure bet without cuts in our greenhouse gas emissions, and this warming alone will likely overwhelm any increases in precipitation to dry out and bake a large swath of our country stretching from California through Texas," says Overpeck. "Decreases in precipitation will make the pain more acute where they occur."

After the drought that sparked the Dust Bowl in the 1930s, the United States implemented conservation efforts and changed farming techniques in ways that have lessened the impacts of severe droughts. Irrigation, for instance, has let many farmers keep fields green even through dry times. And reservoirs have kept communities supplied with water.

Those methods, however, may not see Americans through the upcoming megadroughts, the researchers warn. Giant reservoirs such as Lake Mead have been shrinking due to drought and overuse, threatening water and energy supplies. Groundwater supplies are also being depleted faster than rains can recharge them.



A "bathtub ring" of calcium on the cliffs around Lake Mead highlights how far water levels have dropped. (Richard Cummins/Corbis)

Now entering its fourth consecutive year of drought, California is already starting to encounter some of those limits. In that state, no reservoir is above half full, and farmers may not be able to obtain as much water as they need come spring. Groundwater supplies are being depleted. Wells have run dry.

"Humans act as a positive feedback on hydrological drought," says James Famiglietti, of the University of California, Irvine. "The drier it gets, the more groundwater we use, and as a result, we accelerate drying. The results presented in this paper could not be any more dismal."

But there is still time to head off that future, he says. "The good news is that we have ample warning and know what to do to stop the unprecedented drying from becoming reality—we just need to make serious cuts in greenhouse gas emissions," Famiglietti notes. "Otherwise the next generations of Americans are going to have a huge problem on their hands."

The one bright note, Ault says, is that past megadroughts were recorded in tree rings, which meant that the trees survived even those ultra-dry conditions. "I am optimistic that we can cope with the threat of megadrought in the future because it doesn't mean no water," he says. "It means significantly less water than we are used to."

About Sarah Zielinski



Sarah Zielinski is an award-winning science writer and editor. She is a contributing writer in science for Smithsonian.com and blogs at Wild Things, which appears on Science News.

Date: December 21, 2010	Book: 400	Page: 364	File #: 1710.23	M.O.#: 13a
Department: PLANNING & D	DEVELOPMENT S	2nd Page:		

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : WYATT and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Upon conclusion of a Public Hearing to consider the following regarding the Coyote Wells Specific Plan Area Project, the Board approved the following actions:

a. Approved certification of the final EIR for the Coyote Wells Specific Plan, Findings of Fact, and Mitigation Monitoring and Reporting Program (MMRP).

Topic: Certification of EIR			X-Topic: Coyote Wells Specific Plan			
CC:	 ☑ File ☐ Ag. Comm ☐ Assessor ☑ Auditor ☐ Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	Probation Public Health Public Works Sheriff-Coroner Social Services	☐ Other	

Date: December 21, 2010	Book: 400	Page: 365	File #: 1710.23	M.O.#: 13b
Department: PLANNING & [DEVELOPMENT S	2nd Page:		

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : WYATT and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Approved the General Plan Amendment #08-0003 for the Coyote Wells Specific Plan Area and Findings.

Image: Cell of the state o	Topic:	General Plan Ame	endment #08-0003	3	X-Topic: Coyote Wells Specific Plan Area		
Behavioral Health Gracilities Manag. Planning Gracial Services	CC:	 ☑ File ☐ Ag. Comm ☐ Assessor ☑ Auditor ☐ Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	Probation Public Health Public Works Sheriff-Coroner Social Services	Other	

Date: December 21, 2010	Book: 400	Page: 366	File #: 1710.23	M.O.#: 13c
Department: PLANNING & D	DEVELOPMENT S	2nd Page:		

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : WYATT and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Approved the Coyote Wells Specific Plan #08-0001 and Findings.

Topic: Coyote Wells Specific Plan #08-0001			X-Topic: Findings			
cc:	 ☑ File □ Ag. Comm □ Assessor ☑ Auditor □ Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	 Probation Public Health Public Works Sheriff-Coroner Social Services 	☐ Other	

Date: December 21, 2010	Book: 400	Page: 367	File #: 1710.23	M.O.#: 13d
Department: PLANNING & [DEVELOPMENT S	2nd Page:	10000	

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : WYATT and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Adopted the enabling Zone Change #08-0003 for the Ocotillo/No Mirage Community Area Plan and Zone Map 59 regarding the Coyote Wells Specific Plan Area and adopted Ordinance No. 1469.

Topic: Ordinance No. 1469			X-Topic: Zone Change #08-0003			
CC:	 ☑ File □ Ag. Comm □ Assessor ☑ Auditor □ Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	 Probation Public Health Public Works Sheriff-Coroner Social Services 	☐ Other	

Date: December 21, 2010	Book: 400	Page: 369	File #: 1710.23	M.O.#: _{13f}
Department: PLANNING & D	EVELOPMENT S	2nd Page:		

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : KELLEY and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Approved the Coyote Wells Conditional Use Permit #08-0030 for Airstrip, Heloport and Findings.

Topic	Conditional Use P	ermit #08-0030	X-Topic: Airstrip, Heloport and Findings		
CC:	 File Ag. Comm Assessor Auditor Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	 Probation Public Health Public Works Sheriff-Coroner Social Services 	Cother

Date: December 21, 2010	Book: 400	Page: 370	File #: 1710.23	M.O. #: _{13g}
Department: PLANNING & D	DEVELOPMENT S	2nd Page:		

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : WYATT and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Approved Coyote Wells Conditional Use Permit #08-0031 for two (2) water wells and Findings.

Topic: Coyote Wells Cond. Use Permit #08-0031			X-Topic: 2 Water Wells & Findings		
CC:	 ☑ File ☐ Ag. Comm ☐ Assessor ☑ Auditor ☐ Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	 Probation Public Health Public Works Sheriff-Coroner Social Services 	Other

Date: December 21, 2010	Book: 400	Page: 371	File #: 1710.23	M.O.#: 13h
Department: PLANNING & I	DEVELOPMENT	SERVICES	2nd Page:	

THE BOARD OF SUPERVISORS OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, on a motion by Supervisor : LEIMGRUBER , second by Supervisor : WYATT and approved by the following roll call vote;

AYES : FUENTES, KELLEY, WYATT, LEIMGRUBER

NAYES : TERRAZAS

ABSTAINED : NONE

EXCUSED OR ABSENT : NONE

PUBLIC HEARING

Approved the Development Agreement for the Coyote Wells Specific Plan and Agreement Findings.

Topic: Development Agreement			X-Topic: Coyote Wells Specific Plan Findings		
cc:	 ☐ File ☐ Ag. Comm ☐ Assessor ☑ Auditor ☐ Behavioral Health 	CEO County Clerk County Counsel District Attorney Facilities Manag.	☐ Fire/OES ☐ HR - Risk ☐ Info/Tech ☐ WDO ☑ Planning	 Probation Public Health Public Works Sheriff-Coroner Social Services 	☐ Other



County of Imperial Planning & Development Services 801 Main Street El Centro, CA 92243 Office (760) 482-4236 Fax (760) 353-8338 www.icpds.com

Project Review and Pre-Application

Date Submitted: 02/03/2015

Applicant (who is financially responsible): Pristine sun Fund 2, LLC

Project Name: 10019 Maureen Guth solar project

Assessor's Parcel Number: 033-240-005-000 and 033-240-006-000

Project Location & Brief Description:

Development, construction and operation of a grid-connected ground-mounted solar

facility on the aforementionned parcels (approximately 50 acres in total).

Photovoltaic modules are electrically connected to inverter(s) and step-up transformer(s).

The solar facility is about 5 MW and export the energy to the grid.

Name, Address and Phone Number to contact for revisions and/or approval:

Nicolas Guillaume - Project Manager

Pristine sun LLC

101 Mission street, suite 1050, san francisco, CA 94105-1733

415.848.8162 or nicolas.guillaume@pristinesun.com

	Office Use Only
Planner:	
Date Routed:	Date:





Proposed Project Overview

Pristine Sun

Pristine Sun, LLC is a small family run & employee-owned company. Pristine Sun is an independent power producer and a leading developer of small utility-scale solar energy facilities in America, with 15 such projects constructed in California in 2013 that are owned and operated by Pristine Sun.



Pristine Sun's Commitment to work with Neighbors & Communities

- Small distribution level projects, not mega-transmission level project on 100s of acres.
- Pristine Sun delivers power to the local community by exporting via distribution lines.
- "Light on the land" approach, minimal grading of access road only

• We use non-toxic solar modules that are 100% recyclable and biodegradable, non-toxic oil-filled transformers.

Meyer Solar Project

Pristine Sun is proposing to develop a 5-megawatt (MW) solar photovoltaic facility. The Project location is situated on approximately 47 acres of an 80-acre site in Ocotillo, CA about 1/2 mile north of Imperial Highway and about 1/2 mile west of Shell Canyon Rd. Unlike conventional fossil fuel power generation (such as coal, gas and oil), generating electricity with solar PV, which converts sunlight directly into electricity, involves no moving parts, and generates electricity without emitting climate-warming greenhouse gases or other pollutants. The Solar Project will generate emission-free solar power that would be contracted with San Diego Gas and Electric Company (SDG&E) under a 20-year Power Purchase Agreement (PPA). The project will contribute to California's objective of 33% of its power to come from renewable sources by 2020. The system is scheduled to be in operation by mid 2016. The project is expected to supply enough renewable energy to power up to about 1,000 residential dwellings



Environmental Impacts

Pristine Sun will work in close coordination with Imperial County. In summary, the proposed project intends to have the lowest impact possible to any existing sensitive habitats. Minimal grading would be required and any trees that require removal would be replanted at a ratio of 3 to 1.

Advantages to Local Community & Economy

- Improve local grid reliability, security and stability
- Hedge against inflation & volatile energy costs
- Power is generated locally & is consumed by the local community



Public Works works for the Public



COUNTY OF

DEPARTMENT OF PUBLIC WORKS

155 S. 11th Street El Centro, CA 92243

(el: (760) 482-4462 ax: (760) 352-1272 Jim Minnick, Planning Director Planning & Development Services Department 801 Main Street El Centro, CA 92243

Attention:

February 19, 2015

Patricia Valenzuela, Planner IV

SUBJECT: Pre-Application for 10019 Maureen Guth Solar Project, APN: 033-240-005-000 & 033-240-006-000, located off Imperial Highway in Ocotillo, CA, 92259.

This letter is in response to the pre-application comment packet submitted on February 9, 2015, for the proposed 10019 Maureen Guth Solar Project located along off Imperial Highway in Imperial County. The purpose is to develop, construct and operate a grid-connected ground-mounted solar facility on the aforementioned parcels (approximately 50 acres total).

Department staff has reviewed the package information and the following comments are for the applicant:

- 1) Public access should be identified, as indicated it is very ambiguous where the point of access will be. If public access is off a County maintained road an Encroachment Permit will be required, road improvements may also be required. (As directed by Imperial County Board of Supervisors per Minute Order #6 dated 11/22/1994 per the Imperial County Circulation Element Plan of the General Plan).
- 2) The applicant for Encroachment Permits in County Roads and Right of Way is responsible for researching, protecting, and preserving survey monuments per the Professional Land Surveyor's Act (8771 (b)). This shall include a copy of the referenced survey map and tie cards(s) (if applicable) for all monuments that may be impacted.
- 3) The applicant for grading plans and/or improvement plans is responsible for researching, protecting and preserving survey monuments per the Professional Land Surveyor's Act (8771 (b)). This shall include a copy of the referenced survey map and tie card(s) (if applicable) for all monuments that may be impacted by the project whether it be on-site of off-site
- 4) The applicant shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to offsite properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The applicant shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included. (Per Imperial County Code of Ordinances, Chapter 12.10.020 B).
- 5) An Encroachment Permit shall be required from the Imperial County for any and all new, altered, or unauthorized existing driveway(s) to access the properties through surrounding roads or streets. As a minimum a commercial type of driveway shall be constructed.
- 6) A traffic study shall be submitted to determine the impacts to County Roads intersections.

An Equal Opportunity / Affirmative Action Employer

P:\PRIVATE PROJECTS ADMIN\2) PRIVATE PROJECTS\PA\PA - Maureen Gulh Solar Project\PA - Maureen Guth (form) doc 👘
INFORMATIVE:

- All solid and hazardous waste shall be disposed of in an approved solid waste disposal site in accordance with existing County, State and Federal regulations. (Per Imperial County Code of Ordinances, Chapter 8.72).
- All on-site traffic area shall be hard surfaced to provide all weather access for fire protection vehicles. Fire/OES Standards as well as those of the Air Pollution Control District (ACPD). (Per Imperial County Code of Ordinances, Chapter 12.10.020 A).
- 9) The project will require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality Control Board (RWQCB) prior to County approval of onsite grading plan. (40 CFR 122.28).
- 10) At time of development, if required, by Section 8762(b) of the Professional Land Surveyors Act, a record of shall be filed with County Recorder of Imperial County.
- 11) Caltrans shall be contacted for impacts into the State Hwy 8.

Comments No. 12, 13, 14, 15 and 16 shall apply if a County Roads are impacted.

- 12) Prior to construction of offsite improvements, the applicant shall provide an engineering estimate for any and all offsite improvements to be reviewed and approved by this department. A security bond shall be required for the offsite improvements prior the issuance of the grading and/ or encroachment permits.
- 13) An encroachment permit shall be secured from the Department of Public Works for any and all new, altered or unauthorized existing driveway(s) to access the properties through surrounding roads. As a minimum, a commercial type of driveway shall be constructed at the project's main entrance (Per imperial County Code of Ordinances, Chapter 12.10.020 B).
- 14) The Applicant shall retain a professional civil engineer to survey and evaluate the condition of roads along the proposed haul routes prior to commencing construction. The pre-construction conditions shall be documented for each roadway with photo and text description. Video of haul routes may also be used to document pre-construction conditions. The photographs and/or videos are to include documentation of bridges and other appurtenances such as signs, striping, drainage, and other utilities as determined in consultation with the County. The report shall make a determination of the minimum road design criteria to support anticipated project traffic and whether the existing roadways comply. The Applicant shall submit the completed report to the Imperial County Department of Public Works for review and comment.
- 15) The Applicant shall enter into a Roadway Maintenance Agreement with the County of Imperial prior to issuance of a grading permit. The Applicant shall pay its proportionate share of the responsibility to maintain the proposed haul routes during construction and if necessary bring the roadways up to an appropriate minimum standard to handle the anticipated project traffic.

At a minimum the Applicant shall perform roadway preparation work and construct pavement improvements as specified prior to the use of a haul route that involves any county Road.

In addition, the Applicant shall be responsible for roadway preparation work, pavement construction and repairs to County-maintained roads including County-maintained bridges and other roadway appurtenances for any other route that is subsequently used .This may include, but not be limited to, bridges, signs, striping, drainage improvements and roadway shoulders. Consideration shall also be given to improvements to other infrastructure, such as Imperial Irrigation District canal and drain crossings

16) All on-site traffic area shall be hard surfaced to provide all weather access for fire protection vehicles. The surfacing shall meet the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District (APCD) (Per Imperial County Code of ordinances, Chapter 12.10.020 A).

Should you have any questions, please do not hesitate to contact this office. Thank you for the opportunity to review and comment on this project.

Respectfully,

William S. Brunet, PE Director of Public Works By:

Manuél Ortiz Assistant County Engineer

OB/dm

Exhibit 67

Wind Zero's Coyote Wells Specific Plan Project components from 2009 CWSP & 2010 DEIRUpdated w info from 2009 CWSP changes Must add info from DEIR & FEIR2010-09-19

Documents cited components details:UPDATE IS INCOMPLETE for DEIR & FEIREHEXHIBIT 81

- Notice of Preparation (NOP) and Initial Study(IS) for Coyote Wells Specific Plan January 16, 2009
- Notice of Scoping (NOS) Meeting for Wind Zero Specific Plan EIR on 2/26/09 postmarked Feb. 20, 2009
- Wind Zero Group Inc's Coyote Wells Specific Plan (CWSP), submitted 11-14- 2008, updated12-24-2009
- Appendices (many) for Wind Zero's Coyote Wells Specific Plan November 2008 many updates in 2009
- Coyote Wells Specific Plan Draft EIR SCH No. 2009011063 January 2010, released 1-27-2010 available online at http://www.icpds.com/?pid=2308. Comment deadline March 29, 2010. Appendices also available at same site, but contents are scattered, esp for hydrology found in hydrology, noise and hazmat sections
- Coyote Wells Specific Plan Final EIR SCH No. 2009011063 July 2010, released 7-12-2010 available online at http://www.icpds.com/?pid=2308 and includes the DEIR FIER Sec. 3 is Comments and Responses to Comments; FEIR Sec. 4.0 is Errata or changes and additions to EIR. Most information in Sec 3.0 responses to comments was NOT added as changes to the EIR. Responses provide inconsistent information.
- Information on Wind Zero's project can be found at following at <u>www.wind-zero.com</u>, <u>www.copswiki.org/w/bin/view/common/WindZero</u>, which include videos of 4 meetings, and <u>www.wind-zero-ocotillo.org</u>,

According to the NOP (A-4) and CWSP (p.3 -17, and other pages), and Wind Zero brochures available on the internet at <u>www.wind-zero.com</u>, <u>www.copswiki.org/w/bin/view/common/WindZero</u>, and <u>www.wind-zero-ocotillo.org</u>, the proposed Wind Zero CWSP project consists of the following components to be constructed in three phases over a 9 year time frame, each phase over a 3 year period (CWSP 5), <u>"however it is recognized that market forces will certainly affect the pace of development.</u>" (Emphasis added, CWSP: 78). "Market conditions could delay development and Implementation of the project" (DEIR 4.10-4). CWSP 2009 Update 2009 CWSP states Phase I will start construction in summer 2010, Phase II start const 2014, and Phase III start constr in 2017. (CWSP 5, 14) (DEIR 3.0-45)

Current zoning is R-1, L-40, low density residential with 1 dwelling unit/40 acres (DEIR 1.0-3, 2.0-1, 3.0-2) because of the groundwater constraints and concerns that were critical in the County's adoption of the April 26, 1994 Ocotillo/Nomirage Community Area Plan (ONCAP) which is a part of the Land Use Element of the Imperial County General Plan. ONCAP was an exhibit for the Sierra Club's 2009 Scoping comments. (<u>http://www.icpds.com/CMS/Media/Ocotillo-Nomirage-Community-Area-Plan.pdf</u> and DEIR Appendix 27appa-nop-initial-study-a pp 98-113 at <u>www.icpds.com.</u>) Water use with current zoning 34.5 AF/Y (DEIR 4.14-7)

Notice of Scoping Meeting for Wind Zero Specific Plan EIR revealed no details about project components. The Initial Study is explicit in stating the intent to exclude access by nearby residents who will feel the off-site impacts of the noise, air pollution, traffic and groundwater impacts of the massive project when it states that:

"The Open Space/Recreational portion of the Specific Plan proposes a range of land usescentered around a privately owned law enforcement training facility and a motorsports facility. <u>It will function</u> <u>as a gated community</u> with access to the main portion of the Plan Area being restricted to authorized visitors." (Emphasis added. CWSP IS at p.2.)

Project identified as "Coyote Wells Gated Community" with 22 parcels (DEIR 3.0-14); private recreation area

380.6 Ac (DEIR 4.12-6)

<u>Wind Zero's Coyote Wells Specific Plan Project components</u> for 944 Ac 22 Ac rooftops, 45 Ac pavement (DEIR 3.0-27)

- A. Wind Zero privately owned law enforcement training facility (DEIR 2.0-2; 3.0-1, 3.0-17) will encompass approximately <u>220 acres</u> or twenty-two percent (22%) of the Plan Area. (DEIR 3.0-15) The facility will operate year round and offer both daytime and evening opportunities. (CWSP p.3) (DEIR 3.0-17) New CW E&T zone hours of operation 24 hours, 7 days/week, year round. (CWSP 38) PC hrng transcript start time sinrise. The facility will consist of the following components:
 - Administrative Building, and 2 Classrooms (1,200 prefab modular units) (CWSP 2009 16,) (Not included in Phase I in CWSP 78) (with a Sheriff's substation CWSP '09:16): or is it 28,000 sq. ft including indoor firing range & Sheriff's substation, with classrooms for lease (DEIR 3.0-17). (MM4.11.2-2 requires new substation on or near project site & two new deputies. (DEIR 2.0-40), Admin bldg 20 ft tall (DEIR 3.0-25); Admin Bldg 28,000 sq ft x 50ft in (2010 CWSP Exhibit 9R)
 - Emergency Vehicle Operations Center (EVOC) "resembles suburban street intersection for highspeed driving, defensive driving, natural disaster preparedness (CWSP:3, 16, 17) (Phase I CWSP 78) (DEIR 3.0-18)
 - Skid Pad of polished concrete, water may be added (CWSP 16, 17) (Phase II CWSP 80) (DEIR 3.0-21, DEIR 3.0-49)
 - Paved Handling Area asphalt or concrete (CWSP P. 16, 17) (Phase I CWSP 78) (DEIR 3.0-21, 3.0-45)
 - Burn and Rappel Tower, {3 story tall (CWSP 2008 at p.13) using 144,000gal. water/burn (CWSP 2008: 56) }(DEIR 3.0-21) One 4 story burn tower 22 x 35x 50 ft using 60-86 gal propane/burn 15,000 gal water/burn 24 times/year (CWSP 2009:18; DEIR 3.0-21) (Phase III CWSP 81) (Phase ?? DEIR not given) 50Ft)CWSP 37)
 - Ammunition 34,000 rounds stored in an outdoor Ready Service Locker (CWSP '09: 18) (DEIR 3.0-18); 57,360 rounds fired/day (DEIR 4.6-17)
 - 4 Enclosed Shooting Ranges Indoor ranges will be 1 story, up to 56,000 sq. ft used til 10 PM all year (CWSP '09:19), 24,000 sq. ft includes one 50 meter x 20 shooter range (DEIR 3.0-17) with "sheriff's substation office (DEIR 3.0-17). Two 16,000 sq ft additions to enclosed shooting ranges are proposed to occur in Phases II and III" each for 20 shooters. (CWSP 80, 81) (DEIR 3.0-17; 3.0-18) Used to 10 PM year round (CWSP 19, DEIR 3.0-17) Range bldgs 20 ft tall (DEIR 3.0-25) 3@ 100 M, 1@ 300 M (DEIR 3.0-45) vs, 2 @ 25x25 M and 2 @ 50x25 M (CWSP 19) DEIR Phase I, II, III total is 36,000 sq ft (DEIR 3.0-45, 49, 50).FEIR 4.0-5 changes DEIR 3.0-45 to be 10,000 sf range, but no change to DEIR 3.0=17 or CWSP 2010.
 - 16 Semi-enclosed Shooting ranges 3 sided with roof surrounded by 15 ft high concrete walls 165,000 sq ft will use night vision goggles for night shooting 8 PM-10PM, (CWSP 09:20) (DEIR 3.0-18); Details: One 300 meter range with up to 10 shooters at a time (CWSP '09: 20), one 50 m range , three 100 m ranges, and 10 Live fire training houses all with up to 20 shooters at a time (CWSP '09:20) (DEIR 3.0-18n no change in FEIR) only 15 shooters at a time in live fire houses (CWSP 2010 Addendum 5.0) others still 20 shooters at time, (Only 4 semi-enclosed ranges for Phase 1 (CWSP 78) All Phase I (FEIR 4.0-3) None identified for Phase II or Phase III at CWSP 80, 81). Partial roof shield.. 7semi-enclosed ranges (FEIR 4.0-3) 17 semi-enclosed ranges (CWSP 2010 Addendum 4.0); top will be open (FEIR 4.0-17)
 - 10 live fire shoot houses (DEIR 3.0-17) or 10 Live Fire Training Houses, 2 story, each 5,000 sq. ft. (CWSP 20); *semi-enclosed 6,000 sq ft used until 8 PM fall-spring, to 10 PM spring-fall (CWSP '09:3, 20) (Phase III CWSP 81)* (DEIR 3.0-50), 6,000 s.f. x 30 ft tall (DEIR 3.0-17; 3.0-25) considered as part of Semi-enclosed ranges w 15 shooters at one time. (CWSP Addendum 4.0 Table

4.)

- Mock urban settings (CWSP :3) (DEIR 3.0-17) with 6 live fire shoot houses (FEIR 3.0-102 Response 9-6) in "Mock-up urban environment" with rectangular street layout and uninhabited houses and offices (FEIR 4.0-17, 18) with up to 15 shooters/house (FEIR 3.0-102 Response 9-6)
- Parking lot for LE training facility users (Phase I CWSP 78.) *DEIR 3.0-45
- Guard house or "guard shack" at entrance (CWSP 16, Phase I CWSP 78) (DEIR 3.0-45)
- 36 Aircraft hangers in 2 buildings each 12-35 ft H x 1,600 10,000 sq ft (CWSP 24) (Phase uncertain in CWSP 2009.) (DEIR 3.0-26) in Phase III (DEIR 3.0-50)
- Private Airstrip 40 ft wide x 4,000 ft long (Phase II or III CWSP 79), extension of existing Preston airstrip by 2,100ft (DEIR 3.0-46) Extension of Preston airstrip to be 4,000ft paved after agreement w Owner and improvements Phase III (FEIR 4.0-4), Phase III (CUP 08-0030 S-15 at p. 8)
- 2 Helicopter Landing Area for 4 helicopters, hours same as for operations (CWSP 21) (Phase III CWSP 81); for 6 passenger aircraft daytime only 12 times/day take off/landing 1-2 times/month (CWSP '09:3, 21) (DEIR 3.0-21, 3.0-50) (DEIR 4.2-25) 1 heliport FEIR 4.0-3, two (2) heliports CWSP Exhibit 9R, Tract Map 985, CUP 08-0030 S-7 refers to "A heliport", S-8 "The heliport" S-13 "The heliport..." (CUP 08-0030 at p. 7,8)
- Bunk House, 7,000 sq ft., 60 rooms w two persons/room(CWSP p. 21) (Phase II CWSP 2009 80); 7,000 sq. ft. with cafeteria, 2 persons/room temporary in Phase 1 with 2 pre-fab modular units 30 bunks total (CWSP 78), permanent structure Phase 2 (CWSP:21, 80) (DEIR 3.0-49).
 Bunkhouse/cafeteria max 7,00 sf accommodate groups up to 60 persons three or four persons/room (DEIR 3.0-21), two persons/room (FEIR 4.0-4 changes 3.0-21) Phase I temporary., Phase II permanent 20 ft tall (DEIR 3.0-25) CWSP 2010 no changes re bunkhouse, still 60 room dorm, 2 persons/room; single story bunk rooms 2 persons/room for 60 persons (FEIR 4.0-17 does not change DEIR 3.0-25)
- Arabic translators (WZ website & WZ Marketing Flyer)
- locked access from Hwy 98 at secondary entrance (Phase I CWSP 79) (DEIR 3.0-46)
- gated entrance at Yucca & Molitar (DEIR 3.0-27)

Types of training at proposed Law Enforcement Training Facility (could not find all in DEIR)

- Combat medical training (WZ website & Marketing Flyer; no details provided in 2009 CWSP.) Medical skills training (CWSP:3)
- Fire safety (CWSP 3, 15)
- Firearms safety (CWSP:3, 15)
- Interagency training (CWSP:3, 15) (DEIR 3.0-17)
- Driver education (CWSP: 3, 15) (DEIR 3.0-17, 3.0-22)
- First responder training (CWSP: 3) (DEIR 6.0-10)
- Law enforcement training (CWSP 3, 15) DEIR (3.0-17)
- Natural disaster preparedness (CWSP 17) (DEIR 3.0-18)
- mock urban setting (DEIR 3.0-17)

B. <u>Coyote Wells Motorsports Facility (380 acres or 40%) of plan area</u>

Coyote Wells Motorsports Facility is proposed as a "luxury membership based organization" that will cover approximately <u>380 acres</u> (DEIR 3.0-22) or forty percent (40%) of the Plan Area. "Private recreation area" (DEIR 4.12-6) The facility will operate year round. 24 hrs/day 7 days/week (CWSP 35) PC hrng transcript start times sunrise. The facility will consist of the following components: (CWSP 4, 22) with a driving club (CWSP 22)

- Administrative Building & Clubhouse (20,000 sq .ft.) (Phase III CWSP 2008 67) (DEIR 3.0-50), up to 28,000 st ft for Administration/Conference Center Bldg (CWSP '09:323; DEIR 3.0-17). Multi-purpose Bldg w classrooms, clubhouse & 10,00 sf restaurant (DEIR 3.0-22) 50 ft tall (DEIR 3.0-25) Classroom & Admin bldg 16,000 sf (CWSP 24) Classrooms Phase II (DEIR 3.0-49)
- Three (3) Circuit 6.1 Mile 40-44 ft wide Paved Road Track (M-F 7 AM to 7 PM, weekends 8 AM to 10 PM) (CWSP p. 23) (DEIR 3.0-22,; 4.2-24); Phase I (DEIR 3.0-45) Second circuit of racetrack (Phase II CWSP 80) (DEIR 3.0-49); 3rd circuit racetrack (Phase III CWSP 81)(DEIR 3.0-50). Track use can be leased by international driving clubs such as Porsche, Ferrari, BMW (CWSP 22) track not lighted, use by 9 vehicles at a time, 3/circuit , weekday 7 AM 7PM, weekends 8 AM 10 PM (CWSP '09:4, 23) (DEIR 3.0-22) w EMTs (DEIR 3.0-22) 24/7 (CWSP 35)) PC hrng transcript start times sunrise.
- Motorsports Clubhouse & Administration Bldg 20,000 sq ft. (Phase III CWSP: 81) 28,000 sf (CWSP 23) (DEIR 3.0-22, 3.0-25) 50 ft tall (DEIR 3.0-25)
- Track Control Tower & Medical building(CWSP .23) (3 story, 12,000 sq. ft.) (Phase I CWSP 78) (DEIR 3.0-45), 50 ft tall (DEIR 3.0-23) 80 ft tall (DEIR 3.0-25) becomes 30 ft tall (FEIR 3.0-103 Response 9-10)
- Clubhouse, Restaurant and Conference Center (CWSP 4); clubhouse, restaurant, meeting rooms 10,000 sq ft (CWSP '09: 4, 22, 23), not same as DEIR 3.0-22 which says restaurant is 10,000 sf.
- Go Karting Track (Phase III CWSP 81) (DEIR 3.0-50); w 500 gal above ground fuel storage (CWSP '09:23) (DEIR 3.0-23)
- Kart Track Administration, Maintenance& Retail Bldg 10,000 sq ft. (CWSP Phase III 81) (DEIR 3.0-50)
- Airstrip (portion of Paved Road Track) to meet Preston strip, total 40ft x 4,000 ft paved, 12 take-offs and lands/day weekdays (CWSP '09: 4, 24) (DEIR 3.0-23)(Phase I, CWSP 79); up to 8 passengers/plane (CWSP '10:234) up to 20 takeoffs & landings on weekends (DEIR 4.2-25); airstrip extension Phase III (DEIR 3.0-23)(FEIR 4.0-4 only after agreement with owner)
- 36 Aircraft Hangers in 2 buildings size 1,600 to 10,000 sq ft, w heights 12-35 ft. (CWSP 4, 24) (Phase III, CWSP 81)(DEIR 3.0-50); fully enclosed & lounge & restrooms 35ft tall (DEIR 3.0-26; 3.0-23)
- Pit Area (Phase I CWSP 78) (DEIR 3.0-45) (Phase II CWSP: 80) (DEIR 3.0-49) (CWSP 4, 22, 24, 78, 80)
- Retail Sales Building including luxury car sales (CWSP 4, 24) (20,000 sq .ft, .Phase III CWSP 81) (DEIR 3.0-50); (20,000 sq. ft fncl for luxury car sales, fuel, lubricants, batteries, tires, etc. (CWSP '09:24) 10,000 sf x 20 ft tall (DEIR 3.0-25 and 3.0-50) for lease (DEIR 3.0-23)
- Classroom Building permanent to replace tow 1,200 sf prefab modular (Phase III CWSP 2008: 67); classroom & admin building to replace modular 16,000 sq. ft (CWSP '09;24, no Phase identified) Phase II (DEIR 3.0-49)
- Office Building (Phase II CWSP 2008: 66.), (no phase given in CWSP 2009) 6,000 sf x 20 ft tall (DEIR 3.0-24, 26)
- Vehicle Maintenance Building for auto care and maintenance (CWSP 22) (Phase III CWSP 2008 67)(10,000 sq ft , but no phase given in CWSP '09:24 or DEIR) 25 ft tall (DEIR 3.0-24, 26)

- Thirty-Two (32) Trackside Townhomes "The townhomes will consist of two (2) and three (3) bedroom luxury units, about 2,000 sq ft and include secure climate controlled auto storage for up to four (4) vehicles. (CWSP p. 22, 24); each 2,000 sf x 30 ft tall (DEIR3.0-26) (Phase III CWSP 81) (DEIR 3.0-24, 3.0-50) for sale, lease or timeshare (DEIR 3.0-24)
- Twenty-Eight (28) Garage Lofts "Twenty eight (28) garages will include a ground floor bathroom and a rooftop loft (bedroom) with a track view." (CWSP :22) (DEIR 3.0-24), (Phase III CWSP 81) (DEIR 3.0-50) for sale, lease or timeshare (DEIR 3.0-24), 1,000 sf x 30 ft tall (DEIR 3.0-26)
- 50 Trackside homes (Biol Report p. 5)
- One Hundred (100) Room Hotel Resort with 300 parking spaces (CWSP: 22) (Phase III CWSP 81); (DEIR 3.0-24; 3,0-50), 60,000 sq ft x 35 ft tall may include swimming pool, bar, & restaurant (CWSP '0:25) (DEIR 3.0-24, 26)
- Fueling Services "High performance fuel will be available at the Coyote Wells Motorsports Facility. Fuel will be provided by an above ground fuel tank (12,000 gallon capacity) 92 octane (DEIR 4.2-24) or mobile fuel truck delivery." (CWSP: 25) (Phase I CWSP 78 for 10,000 gallons high octane fuel) (DEIR 3.0-45), 100 gal recycled oil container (CWSP '09:25,) ; 500 gal 92 octane in above ground tank in kart area (DEIR 4,2-24)
- One Hundred Fifty Eight (158) Auto Storage Garages, (DEIR 3.0-24), (58 one and two car garages (Phase I CWSP 78) (DEIR 3.0-45), 600 sf x 16 ft tall (DEIR 3.0-26) with additional 100 spaces (Phase II CWSP 80) (CWSP 22, 25) (DEIR 3.0-49)
- Dry RV Park (DEIR 3.0-24) "The Coyote Wells RV Park is for Coyote Wells Specific Plan Area users only." (CWSP:17, CWSP '09:25) "Up to one hundred fifty (150) space dry RV park" (CWSP: 35) "The RV park will operate as dry camping area only. No sewer hook ups shall be provided. At each space. A centralized RV dump station shall be provided and restrooms shall be provided within the RV park as specified in Title 25 of California Code of Regulations. Power shall be available for RV park users" (CWSP: 25); 50 spaces & manager's 1,800 sq ft unit (Phase II CWSP 80) (DEIR 3.0-39); 100 RV spaces (Phase III, CWSP 81) (DEIR 3.0-50) Max stay 10 days (CWSP '09:25) (DEIR 3.0-24) Potable water will be supplied to all bldgs via pipeline (DEIR 3.0-24)
- Development of lots on Molitar & Hwy 98 (Phase III CWSP 67) 100 spaces of RV park (Phase III CWSP 67) (DEIR 3.0-50)
- 3 single family DU on 6.3 AC after central sewer and potable water infrastructure (DEIR 3.0-24) Lots appear to be in floodway.(CWSP Exhibit 9R)
- 1 commercial lot on Molitar (Phase II CWSP 80) (DEIR 3.0-49)
- parking areas (Phase III CWSP 81)46,000 sf lot by go-kart track, ; 2 lots totaling 365,000 sf proposed near hotel & retail sales (DEIR 3.0-24, 25) 1 lot for WZ Training users Phase I (DEIR 3.0-45) more parking Phase III (DEIR 3.0-50)
- multi-purpose recreational meeting room 10,000 sf x 35 ft tall (DEIR 3.0-25) (Phase III CWSP 81) (DEIR 3.0-50)
- Track control tower 12,000 sf x 80 ft (DEIR 3.0-25; 3.0-19))CWSP Exhibit 9R); 30 ft tall (FEIR 4.0-18 changing only DEIR 4.1-5)

C. Along the State Route 98 Corridor on Wind Zero property are proposed :

• gas and convenience store, 24 hour operation (CWSP 26) (Phase II CWSP 80) (DEIR 3.0-49) ; store 2,400 to 3,200 sq ft (CWSP:26) (DEIR 3.0-25); 3,500 sf x 20 ft tall (DEIR 3.0-26) 3 pump islands, three (3) 12,000 gallon above ground fuel storage tanks, (CWSP 26) (DEIR 3.0-25) in dual wall or

containment area (DEIR 3.0-25)

- 12 mini-storage bldgs for vehicles storage, each bldg 20-48 ft wide x 240 ft long with up to 600 individual storage units(CWSP '09:26) 40' x 240' x 20ft tall (DEIR 3.0-25, 26) each unit to be < or = to 11,520 sf (DEIR 3.0-26) (Phase III CWSP 81) (DEIR 3.0-50)
- Restaurant 800-1,000 sq ft, seating 30 (CWSP '09: 26) (DEIR 3.0-25) (Phase II CWSP80), 800-1200 sq ft (CWSP '09 26) (Phase III DEIR 3.0-28, 3.0-31)
- storage facilities for RVs and automobiles no other details (CWSP 4, 18) (Phase III CWSP 81) *no details (CWSP '09:26)*
- Three 2 acre residential lots (CWSP'09 :4) "only when central sewer system and potable water infrastructure is extended to the lots. Special studies will be required for development of these lots within the Davies Canyon Wash floodplain." (CWSP '09:26) (DEIR 3.0-25) mapped in floodway (DEIR 3.0-32) Phase III (DEIR 3.0-50) Single family residential lots are located in mapped floodway (DEIR 3.0-32, Fig. 3.0-4 at 3.0-9, Fig 3.0-5 at 3.0-15) (CWSP Exhibit 9R) and in Davie Canyon Creek (FEMA FIRM map 2008).

D. Infrastructure for Wind Zero CWSP (throughout CWSP text).

- Private utility company for all roads, electrical, lighting and buried utilities (DEIR 3.0-27)
- 2 new potable water wells with two 1,500 gallon per minute pumped fire flow rate from two 200,000 gallon storage tanks (CWSP: 64, 79, 82) (DEIR 3.0-26; 3.0-37) using up to 87.8 AF/Y water (CWSP 67), or is it just 65 AF/Y (CWSP 82) (NEIR 4.0-4); Wells 8 inch diam 250ft deep, 50 hp submersible pump (DEIR 4.14-5) w standby diesel generator (CWSP 79) (DEIR 4.14-6) (Phase I CWSP 79 also limits Groundwater usage to 4.1 AF/Y.) (DEIR 3.0-46 limits GW to 9,000g/d or 10 AF/Y for Phase I) (FEIR 4.0-5 changes DEIR 3.0-46 limiting groundwater use to 3,600g/d or 4.1 AF/Y for Phase I and Phase II to 29.2 AF/Y); 2 wells pumping 50 gal/min, 200,000 gal water storage tank with flow rate of 1,500 gpm, est two 10 hp motors to provide 100 gpm. (CWSP '09 64). (DEIR 3.0-36; 4.14-5) Phase III limits groundwater use for entire project area to 65 acre feet/year. (CWSP 82) (Cites old DWR records rather than USGS monitoring data.) (EH recalculation for CWSP Table #10 yields usage of 126 AF/Y (CWSP 66-67). (DEIR 3.0-36; 4.14-5) See Table 10 at end of comment letter #12. 4.1 FY/Y Phase I, and up to 29.2 AF in Phase II (FEIR 3.0-475 Response 13-3)
- 2 water wells w groundwater usage 65 AF/F (TM 00985 #57 p7) (DEIR 4.14-9) (CUP 08-0031 #2 p 7)
- "No water infrastructure would be constructed off-site or extended beyone the project's boundary." (DEIR 4.14-6) contrast this to the following
- "If it is determined more groundwater is required subsequent to project development the property owner shall be required to modify the project scope to conform to the maximum water usage as projected and evaluated. In lieu of the project resizing, an alternate offsite supply of groundwater may be evaluated to supply the ultimate project needs. Placement of any utilities within County road right-of-ways will require the applicant to secure an encroachment permit from the Department of Public Works.." (DEIR 3.0-37)
- MM4.7.7g precludes independent government hydrogeologists at USGS Water Resources Center that does the groundwater monitoring and US EPA Region IX that made the designation of Sola Source Aquifer and reviewed groundwater issues related to Imperial Valley Solar Project from determining any findings related to CWSP project groundwater impacts. (FEIR 3.0-476 Response 13-4) (FEIR 4.0-32 re MM 4.7.7g)
- "MM4.7.7gIf it is determined by the third party consultant (not having prior experience or financial interests in the determination of any findings regarding the groundwater resources in the

basin) that Phase I and Phase II water consumption (29.2-acre feet per year) have caused further overdraft in the basin, the project will not be permitted to develop Phase III without securing alternative water supply sources. Phase III (project buildout) will be limited to a total of 65 acre-feet per year. If it is determined the alternative water supply sources are necessary, these alternative water supply sources will be subject to a separate environmental analysis." (FEIR 4.0-32, 33) (FEIR 5.0-21, 22)

- Wells may be relocated if future hydrogeologic studies show drawdown at nearby residential wells. (DEIR 3.0-36)
- 2 wells pump 60,000 gpd (CWSP 67) (DEIR 3.0-36) (Leighton p. 2) 50 gpm
- 8" diam water distribution lines (DEIR 3.0-36) (TM 00985 #48 p 6)
- Groundwater use in Phase II limited to 29.2 AF/Y (CWSP 80) and limited to 65 AF/Y for entire project for Phase III (CWSP 82) (FEIR 3.0-475) when the second well and second 200,000 gal storage tank (46 FEIR 4.0-33)
- 3 -4 separate septic tanks (Phase I CWSP: 79), with a septic tank at each building,, 2 additional septic tanks (CWSP: 66 for Phase II or first 6+ years), 1 for RV Park Mgr's unit (Phase II CWSP 80) (TM #53 p7). 1 septic Phase I, wastewater treatment (DEIR 4.2-31)All Phases will have full tertiary treatment, septic tanks used to collect solids & initial digestion, liquids to wastewater treatment facility (FEIR 4.0-19 changes to DEIR 4.2-31); Phase II 3 septic tanks, RV park mgr, gas station, RV park restrooms (TM #53 p7)
- Centralized dump station & restrooms in RV park (CWSP 25, 50) (DEIR 3.0-24)
- two 24,000 gal buried tanks for wastewater (CWSP 68) (DEIR 3.0-38)
- gas station and convenience store to be served by sewer system (Phase III, CWSP 80) (DEIR 3.0-55) (by septic TM #53 p7)
- after 7 years a 40,000 gallon wastewater treatment plant (CWSP 67 not on map, but within building(s) combined size of 72 ft x 72 ft (CWSP 68)) (Phase III CWSP 82) Wastewater Rec Plant (1 or 2 structures) 72' x 72' ea or 36' x 72' (DEIR 3.0-26)(DEIR 3.0-38)
- 80,000 gallon above ground effluent storage tank 30 ft D x 16 ft height (CWSP 57) in NW part of project (DEIR 3.0-38; Phase I, DEIR 3.0-45) (CWSP Exhibit 14R which also states that: "A septic tank will be required at each point of discharge for solids digestion/handling. Collection system is intended for greywater only." after CWSP 68) (DEIR 3.0-38)
- 6 inch gravity flow sewer line (DEIR 3.0-38)
- one or two 200,000 gal above ground storage tank for water (CWSP 64) or two 200,000 tanks (CWSP 64) (DEIR 3.0-26) tanks 46 ft Daim. x 16 ft tall (CWSP 63) Phase I (CWSP 79) and Phase III (CWSP 82)
- private utility company (DEIR 3.0-27) (DEIR 3.0-14) (TM 00985 #51)
- new 34.5-92 KV switch bank, overhead powerline and transformer 7.25 miles from Plaster City Substation to Coyote Wells (CWSP 71) Overhead (Phase I, 78)(DEIR 3.0-39)
- new Coyote Wells Substation & transformer fenced (CWSP 71)(DEIR 3.0-15; 3.0-39)
- new 12.5 KV overhead powerline going 1.25 miles to Coyote Wells SP Area. (CWSP 71) (DEIR 3.0-39), underground electrical on site (DEIR 3.0-39)
- possibly onsite power generation (Phase II CWSP 71), "A standby liquid petroleum gas-fueled or diesel-fueled generator shall be installed in the event of a power outage." (CWSP 2008 at 57) "for emergency back-up power" (CWSP 72); biodiesel 33 KW power for Phase III (DEIR 4.2-21); combo of PV or solar thermal & diesel 67% Phase II) (DEIR 3.0-39);

- 2 power generation areas just E of RV park for solar and/or diesel generators (FEIR 4.0-16)
- natural gas pipeline from Plaster City to site to feed natural gas fueled engine generator set (CWSP 2008 59) (Not found in CWSP 2009) nearest is7 mi to E at Plaster City (DEIR 3.0-40) so elim & not found in EIR
- Solar PV panels(DEIR 3.0-27), solar-thermal generation or deisel generators (using bio-deisel) will be used on site (Phase I CWSP 71) (DEIR 3.0-39) Phase II, III (DEIR 3.0-39)
- single gas engine or multiple gas or diesel engine generator sets (Phase III CWSP 71) (DEIR 3.0-39) HERE
- possible wind turbines, solar arrays and standby generators for backup emergency (CWSP 72) (DEIR
- utilities for other than electric to be in underground conduits (CWSP 2008 59) all underground (DEIR3.0-27)
- 500 gal above ground 92 octane fuel (DEIR 4.2-24)
- left hand turn lane from Hwy 98 at Molitar, n side of Hwy 98 widened (Phase III CWSP 81) (DEIR
- Secondary access for visitors likely through Nomirage roads, Clark, Cholla, or Molitar or from Hwy 98 (CWSP 62-63) (Phase III CWSP 81) (DEIR 3.0-28)
- Primary access Molitar widened to two 20 ft wide travel lanes with 10 ft wide center median, no curbing (Phase I CWSP 78) (CWSP 62) (DEIR 3.0-27) (DEIR 3.0-40)
- 26 ft wide access road from Hwy 98 at Molitar to Yucca (Phase I CWSP 78) paved (DEIR 3.0-46)
- street lights on Molitar every 300 ft. (Phase I CWSP 78) (DEIR 3.0-39, 40, 46)
- onsite water storage for firefighting (Phase III CWSP 82) (DEIR 3.0-36)
- utility substation at NW part of project in 315 ft x 315 ft fenced area (CWSP 36, 71) (DEIR 3.0-39)
- communication towers (CWSP 36) (DEIR
- Power generation or electrical substation (Phase III CWSP 81) (DEIR
- freeway pole sign 75 ft. (CWSP 29) (Phase I CWSP 78) (DEIR 3.0-45, 26, 32)
- two lane 20 ft wide paved frontage road to I-8 (CWSP 62) (DEIR
- fencing 4-5 strand barbed wire along E boundary w ACEC (DEIR 3.0-11)
- fire station (CWSP 39,40) (public fire station/police station (CWSP 50) not required by FEIR MM related to fire.

E. Parking spaces, estimated approximately 800 or more in addition to RV parking (CWSP various pgs)

Exhibit 68

Wind Zero's Coyote Wells Specific Plan Project (WZ-CWSP) components by Phases2009-05-19Project as described in info available to public in Spring 2009Draft- EHarmonUpdated 2010-01-07Updated 2010-01-07

Documents cited for project components details:

- Notice of Preparation (NOP) & Initial Study (IS) for Coyote Wells Specific Plan (CWSP) Jan. 16, 2009
- Notice of Scoping (NOS) Meeting for Wind Zero Specific Plan EIR on 2/26/09 postmarked Feb. 20, 2009
- Wind Zero Group Inc's Coyote Wells Specific Plan (CWSP), submitted November 14, 2008
- Appendices (many) for Wind Zero's Coyote Wells Specific Plan November 2008

According to the NOP (A-4) and CWSP (p.3 -17, and other pages), and Wind Zero brochures available on the internet at <u>www.wind-zero.com</u>, <u>www.copswiki.org/w/bin/view/Common/WindZero</u>, and <u>www.wind-zero-ocotillo.org</u>, the proposed Wind Zero CWSP project consists of the following components to be constructed in three phases over a 9 year timeframe, each phase over a 3 year period depending on "market forces" (CWSP: 64). Notice of Scoping Meeting for Wind Zero Specific Plan EIR reveals no details about project components. The Initial Study is explicit in stating the intent to exclude access by nearby residents who will feel the off-site impacts of the noise, air pollution , traffic and groundwater impacts of the massive project when it states that:

"The Open Space/Recreational portion of the Specific Plan proposes a range of land uses centered around a privately owned law enforcement training facility and a motorsports facility. <u>It will function as a gated</u> community with access to the main portion of the Plan Area being restricted to authorized visitors." (Emphasis added. CWSP IS at p.2.)

Phase I Year 1-3

A. <u>Wind Zero law enforcement training facility</u> will encompass approximately <u>220 acres</u> or twenty-two percent (22%) of the Plan Area. The facility will operate year round and offer both daytime and evening opportunities. The facility will consist of the following components:

- Administrative Building, and 2 Classrooms (1,200 sq ft prefab modular units) (Phase I CWSP 64)
- Emergency Vehicle Operations Center (EVOC) "resembles suburban street intersection for high-speed driving, defensive driving 7 natural disaster preparedness (CWSP 12) (Phase I CWSP 64)
- Paved Handling Area (CWSP P. 12) (Phase I CWSP 64)
- 5 Enclosed Shooting ranges (each with up to 20 shooters at a time) (CWSP p. 13, 14) (indoor 10,000 sq. ft. Phase I CWSP 64)
- 26 Semi-Enclosed Shooting Ranges (each with up to 20 shooters at a time) (CWSP p. 13, 14) (3 ranges of 50, 100, 200 meters; (Phase I CWSP 64)); (additional 550, 100, and 200 meters; (Phase III CWSP 67))
- using blended metal ammunition (stated by WZ's Webb at meeting in Ocotillo 2007)
- Parking lot (Phase I CWSP 64)
- Guard house at entrance (Phase I CWSP 64)
- 36 Aircraft hangars in 2 buildings each 20 ft tall x 1,600 sq .ft. (CWSP 16) (Phase I CWSP 64)
- Private Airstrip 40 ft wide x 2,300 ft long (Phase I CWSP 64)
- locked access from Hwy 98 at secondary entrance (Phase I CWSP 64)

B. <u>**Coyote Wells Motorsports Facility**</u> a "luxury membership organization" will cover approximately <u>380 acres or</u> forty percent (40%) of the Plan Area. The facility will operate year round. The facility will consist of the following components: (CWSP p. 15)

- Three (3) Circuit 6.1 Mile 40-44 ft wide Paved Road Track (M-F 7 AM to 7 PM, weekends 8 AM to 10 PM) (CWSP p. 15), Track use can be leased by international driving clubs such as Porsche, Ferrari, BMW (CWSP 15)
- Track Control Tower (CWSP p.16) (3 story, 12,000 sq. ft.) (Phase I CWSP 64)
- Pit Area (Phase I CWSP 64)
- Fueling Services "High performance fuel will be available at the Coyote Wells Motorsports Facility. Fuel will be provided by an above ground fuel tank (12,000 gallon capacity) or mobile fuel truck delivery." (CWSP: 17) (Phase I CWSP 64 for 10,000 gallons high octane fuel)
- One Hundred Fifty Eight (158) Auto Storage Garages, , (58 one and two car garages (Phase I CWSP 64) with additional 100 spaces (Phase II CWSP 66)

D. Infrastructure for Wind Zero CWSP (throughout CWSP text and at 68-70).

- 2 new water wells with two 1,500 gallon per minute pumps (CWSP: 65) using up to 85.3 AF/Y water (CWSP 56), or is it just 65 AF/Y (CWSP 68); Wells 200ft deep (CWSP 69)
- 3 -4 separate septic tanks (Phase I CWSP: 65) located near Hwy 98, 2 additional septic tanks (CWSP: 66 for Phase II or first 6+ years), 1 for RV Park Mgr, CWSP 66)
- Molitar widened to two 20 ft wide travel lanes with 10 ft wide center median, no curbing (Phas I CWSP 64)
- 26 ft wide access road from Hwy 98 at Molitar to Yucca (Phase I CWSP 64)
- street lights on Molitar every 300 ft. (Phase I CWSP 64)

Phase II Years 4-6

A. <u>Wind Zero law enforcement training facility</u> will encompass approximately <u>220 acres</u> or twenty-two percent (22%) of the Plan Area. The facility will operate year round and offer both daytime and evening opportunities. The facility will consist of the following components:

- Skid Pad of polished concrete, water may be added (CWSP p. 12, 14) (Phase II CWSP 66)
- 5 Enclosed Shooting ranges (each with up to 20 shooters at a time) (CWSP p. 13, 14) additional 10,000 sq .ft. Phase II CWSP 66),

B. <u>**Coyote Wells Motorsports Facility**</u> a "luxury membership organization" will cover approximately <u>380 acres</u> or forty percent (40%) of the Plan Area. The facility will operate year round. The facility will consist of the following components: (CWSP p. 15)

- Three (3) Circuit 6.1 Mile 40-44 ft wide Paved Road Track (M-F 7 AM to 7 PM, weekends 8 AM to 10 PM) (CWSP p. 15), Second circuit of racetrack (Phase II CWSP 66). Track use can be leased by international driving clubs such as Porsche, Ferrari, BMW (CWSP 15)
- Pit Area (Phase I CWSP 64) (Phase II CWSP 66)
- Office Building (Phase II CWSP 66)
- One Hundred Fifty Eight (158) Auto Storage Garages, , (58 one and two car garages (Phase I CWSP 64) with additional 100 spaces (Phase II CWSP 66)
- Dry RV Park "The Coyote Wells RV Park is for Coyote Wells Specific Plan Area users only." (CWSP:17) "Up to one hundred fifty (150) space dry RV park" (CWSP: 35) "The RV park will operate as dry camping area only. No sewer hook ups shall be provided. A pit toilet building may be constructed and continuously maintained in accordance with the Imperial County Health Department's standards." (CWSP: 39); 50 spaces & manager's unit (Phase II CWSP 66);

C. Along the State Route 98 Corridor on Wind Zero property are proposed :

- gas and convenience store, 24 hour operation (CWSP 17) (Phase II CWSP 66) no details about above ground or underground fuel storage tanks
- restaurant, seating 30 (CWSP 17) (Phase II CWSP 66)

D. Infrastructure for Wind Zero CWSP (throughout CWSP text and at 68-70).

• 2 additional septic tanks (CWSP: 66 for Phase II or first 6+ years), 1 for RV Park Mgr, 2nd for gas station and convenience store (Phase II CWSP 66)

Phase III Years 7-9

A. <u>Wind Zero law enforcement training facility</u> will encompass approximately <u>220 acres</u> or twenty-two percent (22%) of the Plan Area. The facility will operate year round and "offer both daytime and evening opportunities". The facility will consist of the following components:

- 5 Enclosed Shooting ranges (each with up to 20 shooters at a time) (CWSP p. 13, 14) (additional 20,000 sq. ft. Phase III, CWSP 67)
- 26 Semi-Enclosed Shooting Ranges (each with up to 20 shooters at a time) (CWSP p. 13, 14); (additional 550, 100, and 200 meters; (Phase III CWSP 67))

- Helicopter Landing Area for 4 helicopters, hours same as for operations (CWSP p. 14) (Phase III CWSP 67)
- Bunk House 60 rooms (CWSP p. 14) (Phase III CWSP 67)

B. <u>**Coyote Wells Motorsports Facility**</u> a "luxury membership organization" will cover approximately <u>380 acres</u> or forty percent (40%) of the Plan Area. The facility will operate year round. The facility will consist of the following components: (CWSP p. 15)

- Administrative Building & Clubhouse (20,000 sq .ft.) (Phase III CWSP 67)
- Three (3) Circuit 6.1 Mile 40-44 ft wide Paved Road Track (M-F 7 AM to 7 PM, weekends 8 AM to 10 PM) (CWSP p. 15), 3rd circuit racetrack (Phase III CWSP 67).
- Track use can be leased by international driving clubs such as Porsche, Ferrari, BMW (CWSP 15)
- Go Karting Track (Phase III CWSP 67)
- Retail Sales Building including luxury car sales (CWSP 16) (10,000 sq .ft, .Phase III CWSP 67)
- Classroom Building permanent to replace prefab modular (Phase III CWSP 67)
- Maintenance Building for auto care and maintenance (CWSP 16) (Phase III CWSP 67)
- Thirty-Two (32) Trackside Townhomes "The townhomes will consist of two (2) and three (3) bedroom luxury units and include secure climate controlled auto storage for up to four (4) vehicles. (CWSP p. 16), (Phase III CWSP 67)
- Twenty-Eight (28) Garage Lofts "Twenty eight (28) garages will include a ground floor bathroom and a rooftop loft (bedroom) with a track view." (CWSP :17), (Phase III CWSP 67)
- One Hundred (100) Room Hotel Resort with 300 parking spaces (CWSP: 48) (Phase III CWSP 67
- Dry RV Park "The Coyote Wells RV Park is for Coyote Wells Specific Plan Area users only." (CWSP:17) "Up to one hundred fifty (150) space dry RV park" (CWSP: 35) "The RV park will operate as dry camping area only. No sewer hook ups shall be provided. A pit toilet building may be constructed and continuously maintained in accordance with the Imperial County Health Department's standards." (CWSP: 39); 100 RV spaces (Phase III, CWSP 67)
- Development of lots on Molitar & Hwy 98 (Phase III CWSP 67) 100 spaces of RV park (Phase III CWSP 67)
- parking areas (Phase III CWSP 67) multi-purpose recreational meeting room (Phase III CWSP 67)

C. <u>Along the State Route 98 Corridor on Wind Zero property</u> are proposed : storage facilities for RVS and automobiles no other details (CWSP 18) (Phase III CWSP 67)

D. Infrastructure for Wind Zero CWSP (throughout CWSP text and at 68-70).

- 2 new water wells with two 1,500 gallon per minute pumps (CWSP: 65) using up to 85.3 AF/Y water (CWSP 56), or is it just 65 AF/Y (CWSP 68); Wells 200ft deep (CWSP 69)
- Additional water wells (Phase III CWSP 67)
- 3 -4 separate septic tanks (Phase I CWSP: 65) located near Hwy 98, 2 additional septic tanks (CWSP: 66 for Phase II or first 6+ years), 1 for RV Park Mgr, 2nd for gas station and convenience store (Phase II CWSP 66)
- after 7 years a 40,000 gallon wastewater treatment plant (CWSP 67 not on map, but within building(s) combined size of 72 ft x 72 ft (CWSP 57)) (Phase III CWSP 67)
- left hand turn lane from Hwy 98 at Molitar, n side of Hwy 98 widened (Phase III CWSP 67)
- Secondary access for visitors likely through Nomirage roads, Clark, Cholla, or Molitar or from Hwy 98 (Phase III CWSP 67)
- onsite water storage for firefighting (Phase III CWSP 67)

<u>Phase uncertain</u>

A. <u>Wind Zero law enforcement training facility</u> will encompass approximately <u>220 acres</u> or twenty-two percent (22%) of the Plan Area. The facility will operate year round and offer both daytime and evening opportunities. The facility will consist of the following components:

- Burn and Rappel Tower, 3 story tall (CWSP p.13) using 144,000gal. water/burn (CWSP 56)
- 10 Live Fire Training Houses, 2 story, each 5,000 sq. ft. (CWSP p. 14)

B. <u>**Coyote Wells Motorsports Facility**</u> a "luxury membership organization" will cover approximately <u>380 acres</u> or forty percent (40%) of the Plan Area. The facility will operate year round. The facility will consist of the following components: (CWSP p. 15)

- Medical Building (CWSP p.16) (not found in any Phase)
- Restaurant and Conference Center (CWSP p. 15)
- Arabic translators (WZ website)
- Combat medical training (WZ website; no details provided.)
- Airstrip (portion of Paved Road Track)
- 36 Aircraft Hangers (20ft H x 1,600 sq. ft.) (CWSP p. 16)

D. Infrastructure for Wind Zero CWSP (throughout CWSP text and at 68-70).

- 2 new water wells with two 1,500 gallon per minute pumps (CWSP: 65) using up to 85.3 AF/Y water (CWSP 56), or is it just 65 AF/Y (CWSP 68); Wells 200ft deep (CWSP 69)
- 80,000 gallon above ground effluent storage tank 30 ft D x 16 ft height (CWSP 57) in NW part of project (CWSP Exhibit 14 which also states that: "A septic tank will be required at each point of discharge for solids digestion/handling. Collection system is intended for greywater only." after CWSP 57)
- one or two 200,000 gal above ground storage tank for water (CWSP 58) or two 200,000 tanks (CWSP 69) tanks 46 ft Daim. x 16 ft tall (CWSP 58)
- new 92 KV overhead powerline and transformer 7.25 miles from Plaster City Substatn to Coyote Wells (CWSP 59)
- new Coyote Wells Substation & transformer (CWSP 59)
- new 12.5 KV overhead powerline going 1.25 miles to Coyote Wells SP Area. (CWSP 59)
- possibly onsite power generation (CWSP 59),
- "A standby liquid petroleum gas-fueled or diesel-fueled generator shall be installed in the event of a power outage." (CWSP 57)
- natural gas pipeline from Plaster City to site to feed natural gas fueled engine generator set (CWSP 59)
- single gas engine or multiple gas or diesel engine generator sets (CWSP 59)
- possible wind turbines, solar arrays and standby generators for backup emergency (CWSP 59)
- utilities for other than electric to be in underground conduits (CWSP 59)
 - E. <u>Parking spaces</u>, estimated approximately 800 or more in addition to RV parking (CWSP various pgs)

NOTE:

On 2009-11-11, Planner Black indicated that County was still awaiting additional payments from WZ and that the EIR would not be released earlier than 4 weeks after County receives payment. Also indicated that County may only consider permitting Phase I of proposed project. 2010-01-05 Planner Black stated DEIR expected 2nd week Jan 2010.

When Draft Environmental Impact Report (DEIR) (as required by the California Environmental Quality Act (CEQA)) is made available for public review (expected in December 2009) there may be many changes to the proposed project components and time frames. Comments on the DEIR and the WZ-CWSP project that are in to form of questions, who? what? when? wher? why? why not? how? how much? how many? how long? and by whom?, etc. will all require answers or explanations more than a simple "yes", "no" or "comment noted".

Hand written or typed letters from individuals and/or organizations dealing with specific issues and concerns/questions are best. Petitions with printed name, signature and street address, city, zip and full text are better than lots of identical form letters with signatures.

Exhibit 69

Targeting "Cerrell" Communities

Industry and government see siting strategy as their most important undertaking. Though we haven't found a "Master Plan" specifically targeting poor, Black, Hispanic, Appalachian or Native American communities for LULUS (Locally Undesirable Land Use), we've come close in this and some other cases. In this case, of 43 trash incinerators planned for California, the 3 that ended up getting built were in communities of color.

In 1984, the California Waste Management Board paid the Los Angeles consulting firm, Cerrell Associates, \$500,000 to define communities that won't resist siting of LULUs. The study drew on a broad range of industry and academic studies and we believe it's been broadly circulated throughout the regulatory agencies and waste industry around the country. The Cerrell Study is explicit in identifying communities who won't resist LULUs. Because almost every new group served by the Center for Health, Environment and Justice since 1984 (and by the Energy Justice Network since 1999) matches the Cerrell profile, we believe it's the "Master Plan" for siting. Cerrell provides important proof that siting is 99% politics and 1% science.

One amazing line in the report (see p53) rings particularly true in our experience: "One occupational classification has consistently demonstrated itself as a strong indicator of opposition to the siting of noxious facilities, especially nuclear power plants — housewives." It's amazing how well these words and the strategies outlined in this document over 20 years ago still hold very true today.

Here's what the Cerrell study says:

LEAST LIKELY TO RESIST

Southern, Midwestern communities Rural communities Open to promises of economic benefits Conservative, Republican, Free-Market Above Middle Age High school or less education Low income Catholics Not involved in social issues Old-time residents (20 years+) "Nature exploitive occupations" (farming, ranching, mining)

MOST LIKELY TO RESIST

Northeastern, western, California Urban communities Don't care or benefits are minor Liberal, Democrat, "Welfare State" Young and middle-aged College-educated Middle and upper income Other Activist Residents for 5-26 years Professional (i.e. "YUPPIES")

Counter-measures

To deflate a Cerrell strategy, get it out before your community. Show how it's polluters' way to identify "toxic chumps." TELL your friends, neighbors and local media about Cerrell so word gets out that the real reason why you're getting a LULU is because a Los Angeles consulting firm study says you're too stupid to resist. They ought to be really thrilled to hear that! Most groups that unveiled the Cerrell Formula stirred massive community outrage and stiffened resistance to the LULU.

[This intro page adapted by the Energy Justice Network (<u>www.energyjustice.net</u>) from the Center for Health, Environment and Justice (<u>www.chej.org</u>). Please see <u>www.ejnet.org/ej/</u> for additional information on environmental justice and environmental racism. The rest of this document is the unadulterated original report.]

Exhibit 70

February 20, 2015

Via Email docket@energy.ca.gov and First Class Mail California Energy Commission Dockets Office, MS-4 Docket No. 09-RENEW EO-01 1516 Ninth Street Sacramento, CA 95814-5512

Re: <u>DRECP NEPA/CEQA Comments of Alliance for Desert Preservation and</u> <u>Mojave Communities Conservation Collaborative on the Draft DRECP</u> <u>document and related Environmental Impact Report/Statement</u>

Dear Sir or Madam:

The Alliance for Desert Preservation (ADP) is a nonprofit mutual-benefit corporation formed to protect the environmental and economic well-being of the High Mojave Desert and to support a sustainable future, while safeguarding against activities that may harm the High Mojave Desert.

The Mojave Communities Conservation Collaborative (MC3) is a grassroots organization formed in response to the need for a local voice for residents and stakeholders in the Mojave Desert regarding a variety of plans and projects poised to permanently impact our rural communities; its mission is to save Mojave Desert Communities through collaboration with like organizations, and local stakeholder empowerment, preserve the rural way of life, sustain healthy productive local communities, implement habitat conservation, and preserve one of the most significantly threatened, under-represented species of all: *"The rural living community"*.

The Morongo Basin Conservation Association advocates for a healthy desert environment that nurtures our rural character, cultural wealth, and economic well-being. The objectives of MBCA, as incorporated in Article II of its By-Laws, are:

- a) To preserve the economic and environmental welfare of the Morongo Basin against exploitation deemed not in the best interest of the residents thereof, and
- b) To promote master planning for the entire area known as the Greater Morongo Basin including all of the various communities therein.

The Desert Protective Council (DPC) is a 501(c) (3) non-profit membership organization founded in 1954 with members throughout the southwest and scattered nationwide. The DPC's mission is to safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual, or recreational value, and to educate children and adults to a better understanding of the deserts.

Basin and Range Watch is a group of volunteers who live in the deserts of Nevada and California, working to stop the destruction of our desert homeland. Federal and many state agencies and some local governments are seeking to open up millions of acres of unspoiled habitat in our region to industrial renewable energy development. Our goal is to identify the problems of energy sprawl and find solutions that will preserve our natural ecosystems and open spaces.

We jointly respectfully submit the following comments on the draft DRECP document and related draft Environmental Impact Report/Statement. For ease of reference, in this letter we will frequently simply use the acronym "DRECP" or the phrase "draft DRECP" when referring to the draft DRECP document and related draft Environmental Impact Report/Statement.

1. Procedural Defects.

In ADP's letter dated January 15, 2014, we made two formal requests that the REAT agencies correct two procedural flaws in the DRECP public notice/public comment process. One flaw arises from a substantial defect in the Notice of Availability of the Draft DRECP and Draft EIS/R, published in the Federal Register Volume 79, Number 187 on September 26, 2014. Specifically, the Notice fails to give any real notice that the DRECP is proposing a Land Use Plan Amendment which would entirely overhaul and supplant the "MUC" land use designations which have been in place for more than 30 years, and, further, that this total overhaul would apply not just to federal lands within the DRECP area but to the entire CDCA plan area, and would be applicable to all uses whether or not related to renewable energy. The second flaw relates to the anticipated revised WEMO Plan and related revised FEIS; this plan and related environmental document necessarily inter-relate with the DRECP and Draft EIS/R; for example, the Draft DRECP relies heavily on approximately 150 proposed new ACEC's as a mechanism to

conserve important environmental values, but the worksheets for these proposed ACEC's provide no data for access routes, which are apparently awaiting issuance of the revised WEMO Plan. The absence of any route data in the proposed ACEC's makes it impossible to assess how well the proposed ACEC's would fulfill their assigned function.

Unfortunately, the REAT agencies did not respond to our January 15 letter's proposal to cure now these two procedural defects. Remaining uncured, these defects will now carry over and infect the final product unless and until the REAT agencies cure the procedural problems.

2. <u>The Draft DRECP Has not Allowed Ample Time for Public Review and</u> <u>Comment.</u>

The draft DRECP is an enormous document containing more than 10,000 pages. The approximately 145-day comment period doesn't provide enough time to thoroughly read the document and provide meaningful comment. One would have to read about 70 pages per day over the allocated 145 days, which does not leave room for evaluation and comment.

Also, the draft DRECP lists sources, but does not tie any source to a particular finding. Instead, it aggregates the sources according to chapter and subchapter. This requires the reviewer to judge which part was intended to support the citation. This makes it difficult to determine whether a statement made in the draft DRECP is supported by substantial evidence.

According to CEQA requirements, meaningful public comment is the key phase of the review process. CEQA Guidelines 15203 states:

"The lead agency shall provide adequate time for other public agencies and members of the public to review and comment on the draft EIR or negative declaration that it has prepared."

Adequate time is required not only because "Public participation is an essential part of the CEQA process" (CEQA Guidelines 15201), but because the Legislature has declared that the purposes of the review period include:

- (a) Sharing expertise;
- (b) Disclosing agency analysis;
- (c) Checking for accuracy;
- (d) Detecting omissions;
- (e) Discovering public concerns; and
- (f) Soliciting counter proposals.

The Legislature has further found:

"(i)t is the policy of the state that projects to be carried out by public agencies be subject to the same level of review and consideration (under CEQA) as that of private projects required to be approved by public agencies." (Pub. Res. Code 21001.1)

According to CEQA:

15105. Public Review Period for a draft EIR or a Proposed Negative Declaration or Mitigated Negative Declaration

(a) The public review period for a draft EIR shall not be less than 30 days nor should it be longer than 60 days *except under unusual circumstances*. When a draft EIR is submitted to the Estate Clearinghouse for review by state agencies, the public review period shall not be less than 45 days, unless a shorter period, not less than 30 days, is approved by the State Clearinghouse. (Emphasis added).

No one would disagree that the scope and magnitude of the DRECP brings it into the "unusual circumstances" category.

One additional factor contributing to "unusual circumstances" is the DRECP's choice to format much if its data in the "Gateway" GIS format. Simply to learn how to access and utilize this tool was a big demand on time and money; the REAT agencies acknowledged the complexity of the Gateway system when it sponsored workshops and webinars simply to teach people the basics of navigating the system. Further, because of the "layering" feature of Gateway, each Gateway page is the equivalent of many pages of data formatted more conventionally.

Under these circumstances, 145 days is grossly insufficient, except perhaps for members of the public with very specific or narrow agendas. Persons with a broad concern for the interplay of renewable energy planning and conservation values in the desert – including the authors of this letter – have found the sheer volume of information to be too overwhelming. Clearly important issues and problems have been overlooked simply because there has not been time to absorb it all.

Therefore, the time for public comment should be extended for at least an additional 180 days beyond the date of announcement of the extension.

3. <u>The Draft DRECP fails to Analyze the Impacts of the Plan in the Context of FLPMA.</u>

Under the Federal Lands Policy Management Act (FLPMA), Congress designated 25 million acres of southern California as the California Desert Conservation Area ("CDCA"). 43 U.S.C. § 1781(c). FLPMA declares that the CDCA is a rich and unique environment with "historical, scenic, archaeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources." 43 U.S.C. § 1781(a)(2). FLPMA provides that this desert and its resources are "extremely fragile, easily scarred, and slowly healed." Id. FLPMA requires the BLM to, "by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b).

Under FLPMA, the BLM is charged with managing BLM lands with its eye steadily on multiple uses and sustained yield. This is what the BLM has done since the inception of the CDCA, through the MUC (Multiple Use Categories) land categorization tool. The DRECP proposes to jettison this approach altogether, in favor of a "programmatic" designation of 2 million acres of land streamlined for development. This effectively deprives the BLM of being able to bring judgment, discretion, and flexibility to decisions over land use in any DFA over the life of the DRECP, i.e. for 25 years. Under this "programmatic" approach, it appears to be difficult if not impossible for the BLM to fulfill its multiple use mandate imposed by the FLPMA.

The Draft DRECP gives no consideration to the implications of this mass abandonment of MUC classes in favor of a programmatic approach, nor does it in any specific or concrete way analyze whether the proposed LUPA will prevent unnecessary or undue degradation of BLM lands. The Draft DRECP offers little in the way of critique regarding the effect of the proposed new designations on uses on public lands such as mining, grazing and OHV use. Moreover, under the existing system of land use designations, lands with particular conservation values are identified and appropriate protective actions are crafted; the Draft DRECP does not state clearly whether or how this policy would be continued under the proposed LUPA.

The same radical and far-reaching features of the Plan Amendment process under the DRECP – and the same vexing legal problems they present -- infect the document's approach to conservation lands, ACEC designations, Special Recreation Management Areas and Extensive Recreation Management Areas. All of these new land management rubrics wear a programmatic mask which is at odds with the need for case-by-case discernment inherent in the BLM's multiple use mandate. Under the DRECP the BLM would be designating, all at once, fifty-eight new ACEC's. This mass designation is contrary to the site-specific nature of ACEC designation characteristic of the BLM's approach to multiple use.

The DRECP's omissions, as set out in the immediately preceding two paragraphs, render it defective as an EIR/S. The DRECP is required to give this issue serious consideration; it must evaluate the proposed amendments to the CDCA land use plan by the BLM in terms of their impacts on other parts of the CDCA plan beyond the renewable energy element. And it must do so within the framework of Sections 1781 and 1732 of Title 43; that is, the primary analytical touchstone must be whether the proposed land use amendments will prevent unnecessary or undue degradation of BLM lands.

4. <u>The Draft DRECP Makes "Moving Targets" of ACEC and NLCS Lands, in</u> <u>Contravention of the FLPMA.</u>

When the <u>Omnibus Public Lands Act of 2009</u> was made into law, it established the National Lands Conservation System (NLCS), which is made up of BLM lands with significant resources for conservation properties (identified as National Conservation Lands (NCLs)).

Under the Act, land with significant conservation resources is to be included in the NLCS. These significant conservation resources are, by their nature, immutable; they do not suddenly become "lesser" or "greater" conservation resources according to how important a competing use is deemed to be, or according to broad-brush alternative ways of valuing competing uses throughout the CDCA area.

However, the Draft DRECP indeed turns these conservation resources into plastic features which can be stretched or shrunk, depending on the deemed importance of critical uses and/or broad philosophical alternative concepts of the CDCA area. The DRECP does this by calling for weighing of criteria on a case by case basis, so as to accommodate different renewable energy outcomes for individual alternatives. Under this scheme, resources identified as worthy of NCL status are lost in one alternative and "found" in another alternative. If the boundaries of those lands with significant resources are adjusted to fit different alternatives, then effectively conservation properties are forced out of existence.

By way of illustration, and using the summary in Table 7 of the Executive Summary, total acreage for NLCS lands varies from as little as 1,682,000 (for Alternative 1) to as much as 5,124,000 (Alternative 2), and total acreage for ACEC lands varies from as little as 1,104,000 (alternative 2) to as much 3,609,000 (alternative 1). These vast disparities are a signal that the basic mandates of FLPMA are not being followed in the Draft DRECP, since the conservation values for the lands in question are exactly the same, regardless of the Alternative being considered.

5. The Draft DRECP Omits Critical Documents

The DRECP states that the Programmatic Agreement regarding Section 106 Cultural Resource evaluations does not yet exist, but yet it is expected to be incorporated in the final ROD. It is not clear from the DRECP whether there are other documents or agreements which will become part of the ROD but which do not exist at this time.

Failure to include such documents in the Draft DRECP and DEIS/R leaves a critical gap in the ability of the public to assess and critique the Plan. The EIR is an informational document, the purpose of which is to provide public agencies and the public in general with detailed information about the likely effect of a proposed project on the environment. <u>Laurel Heights</u> <u>Improvement Assn. v. Regents of University of California</u>, 47 Cal.3d 376, 391 (1988). The DRECP may not defer the providing of this "detailed information" to a point where it is too late for the public to do anything about it. Failure to include this document renders the Draft DRECP and DEIR/S defective, as to the subject of Cultural Resource. Equivalent omission as to the other topics may render the Draft DRECP and DEIR/S defective as well; the time allotted for public comment has simply been insufficient to allow a full vetting of the document for similar omissions.

6. <u>The Memorandum of Understanding Between CDFW and the BLM Does Not</u> <u>Appear to be a Proper Mechanism to Satisfy the Durability or Monitoring</u> <u>Requirements of the NCCP.</u>

It appears that the NCCP segment of the DRECP depends heavily on the preservation of conservation values by the BLM; to be accomplished pursuant to a memorandum of understanding (MOU) between California Fish and Wildlife and the BLM. Apparently the MOU is only in draft form, so that at this time there is no agreed-to mechanism in place to advance the necessary elements of a conservation plan under the NCCP. However, even if there were a valid and effective MOU, the fact remains that the MOU is not up to the job, because the conservation management tools at the BLM's disposal are by their nature temporary.

The BLM is, of course, subject to FLPMA, which requires BLM to balance a number of disparate land-use goals. Various criteria and concerns can change over time, and thus administratively-designated areas within BLM jurisdiction are by their nature not necessarily fixed for all time. This very flexibility becomes a defect when the Plan leaves it to the BLM to accomplish conservation values which by their nature need to be durable.

Thus, the BLM cannot and does not have land use designations which are durable and which recognize conservation as the primary land use. Therefore, mitigation on public lands cannot be durable or adequate. Despite this, the DRECP, and the MOU, attempt to make the BLM the responsible agency for assuring adequate conservation values on public lands.

The draft memorandum of understanding is defective in other respects as well. It does not address the requirement of tracking of the 37 Covered Species and the impacts of development and MCA's on each species. It contains no mention of keeping track of actual acreage of impacts, monitoring of implementation, or loss of habitat. It fails to address even the basics of paying for and conducting the monitoring of whether the DRECP's biological goals and objectives are actually being met.

7. The Draft DRECP Should Consider a "Brownfields" Alternative.

Viable alternatives to remote, utility scale renewable energy development on public lands have been proposed by the Environmental Protection Agency (EPA). Unfortunately, the EPA's proposal has been given no serious consideration by the DRECP.

In its RE-Powering America's Lands Initiative, the EPA recommends siting renewable energy on potentially contaminated lands, landfills, and mine sites. The fact that no discussion of the EPA reports cited below has been included in the DRECP underscores that the EPA's energy siting criteria have not been considered by the DRECP as a framework for modifying the Alternatives considered, or as the basis for an entirely new and separate althernative emphasizing development on brownfields.

The EPA's "Best Practices for Siting Solar Photovoltaics on Municipal Solid Waste Landfills," February 2013" states, "EPA has screened more than 11,000 potentially contaminated sites and MSW landfills – covering nearly 15 million acres across the United States – for suitability to site renewable energy generation facilities, including utility-scale solar." EPA identified several benefits of locating solar photovoltaic facilities on these sites, noting that these sites generally are located near existing roads and energy transmission or distribution infrastructure, may reduce the environmental impacts of energy systems, and can be developed in place of limited open space, preserving the land as a carbon sink and/or for other ecosystem services

The EPA further noted that MSW landfills are particularly well-suited for solar development because they are

o Located near critical infrastructure, including electric transmission lines and roads

- Located near areas with high energy demand (e.g., large population bases)
- Constructed with large areas of minimal grade
- Offered at lower land costs when compared to open space
- Able to accommodate net metered or utility scale projects

As part of its RE-Powering America's Land Initiative, the "Renewable Energy Projects on Potentially Contaminated Lands, Landfills, and Mine Sites," report of October 2012" documents the development of 184 megawatts of renewable energy on the 15 million acres referred to in the EPA's above-cited best practices document.

The DRECP goes to great lengths to attempt to work out a balance between the conflicting policy goals of encouraging utility scale renewable energy development, and protecting the fragile desert environment. Yet it makes no attempt to consider an alternative which has, to a great extent, a built-in solution to this tension in policy goals: identifying and emphasizing placement of renewable energy projects on brownfields. This alternative is such a reasonable one that the DRECP is required to consider it. See discussion under headnote 9 below.

8. <u>The Draft EIR/S Improperly Constricts its Definition of "Purpose and Need" to</u> <u>Diminish or Eliminate the Consideration of the Effects of California State</u> <u>Statutes and Regulations on the Perceived Need for 20,000 Megawatts of Utility-</u> <u>Scale Renewable Energy Projects in the Desert.</u>

An EIR's statement of purpose and need "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." CEQ Guidelines, Section 1502.13. Although "[c]ourts have 'afforded agencies considerable discretion to define the purpose and need of a project, . . . this discretion is not unlimited." <u>Westlands Water Dist. v. U.S. Dept. of Interior</u>, 376 F.3d 853, 866 (9th Cir. 2004). Such statements are reviewed for their "reasonableness." <u>Id</u>. Among other things, "[a] purpose and need statement will fail if it unreasonably narrows the agency's consideration of alternatives so that the outcome is preordained." <u>Alaska Survival v. Surface Transp. Bd.</u>, 705 F.3d 1073, 1084 (9th Cir. 2013).

Were it otherwise, a lead agency could effectively excuse itself from properly considering alternatives by deftly wording "purpose and need" to eliminate all but the one it prefers. Unfortunately, this is what the draft DRECP does.

The DRECP's stated "purpose and need" is to generate 20,000 MW of renewable energy through incentivizing development of utility-scale plants. By injecting "utility-scale" into the "purpose and need", the draft DRECP pre-ordains that any alternative focused on a method of generating electricity other than utility-size projects will be inadequate.

Thus, the DRECP:

(1) summarily dismisses the "Distributed Generation Alternative" on the ground that it "would not meet the interagency [20,000 MW] goal because it does not provide a streamlined process for the development of utility-scale renewable energy . . . [Chapter II.8-9 of the section entitled, "Alternatives Considered But Not Carried Forward;"¹

(2) acknowledges elsewhere that Distributed Generation would "partially respond to USFW's purpose and need to conserve the ecosystems upon which federally protected species depend may be conserved . . . because sensitive desert habitats would not be disturbed by large, utility-scale solar facilities. However, this alternative would not respond to the USFW's purpose and need to advance DOI's national policy goals to identify and prioritize specific locations best suited for large-scale production of solar energy on public lands and encourage the production, development, and delivery of renewable energy as one of DOI's highest priorities" [II.8-9]; and

(3) acknowledges that distributed generation "could partially meet the CEC, CDFW, and CSLC objectives to contribute to California's RPS and greenhouse gas reduction mandates and goals . . ." but then concludes that distributed generation conflicts with the interagency objectives because distributed generation "would only partially meet the objective of accommodating and minimizing the potential environmental impact of utility-scale renewable energy generation sufficient to accommodate foreseeable demand in Plan Area through 2040 [II.8-9]"

The last of the above three conclusion is particularly startling. It says, in essence, that utility scale makes for bad environmental consequences, and that any alternative such as distributed generation which avoids these consequences is unacceptable because it wouldn't give the DRECP the chance to "accommodate" and "minimize" the bad environmental consequences

¹ The DRECP cites an additional ground (at II.8-9) for its refusal to consider a Distributed Generation alternative: it ". . . does not provide for the long-term conservation and management of Covered Species and other physical, cultural, scenic and social values within the Plan Area." This assertion is unjustifiable, and is not supported by any analysis, studies or data. In fact, this assertion is contradicted by the DRECP's separate conclusion that distributed generation supplants large utility scale facilities that disturb ecosystems upon which federally protected species depend.

of utility scale. This is akin to the police chief bemoaning the lack of crime because it prevents the police from proving their crime-fighting skills.

Leaving this aside, the DRECP is saying that even though Distributed Generation would advance the REAT agencies' environmental goals in ways that centralized generation cannot, the DRECP's hands are tied – and Distributed Generation cannot be accorded any genuine consideration – because various state and federal "outside mandates" (such as AB 32 and the state's 33% RPS) supposedly require the DRECP to increase the generation of renewable energy by way of *utility-scale* generation.

California statutory and regulatory policy is directed squarely against, not for, maximizing remotely situated, utility scale renewable energy. These policies militate strongly against the DRECP's current prioritizing of centrally-located, large-scale projects.

AB 32 is a greenhouse gas statute that does not specify that its goals must be achieved only through utility-scale renewable energy plants, that does not set a 20,000 MW goal, and that does not specify that utility plants must be concentrated in the California desert. Rather, AB32 clearly acknowledges a diverse suite of tools to address climate change, including energy efficiency, demand response, storage solutions and protection of our ecosystems and water sources to bolster resilience, in addition to generation of renewable energy.

California Executive Order S-14-08 – which calls for a 33% RPS goal – does not state that utility-scale plants are all the REAT agencies need consider in seeking to advance that goal. In fact, the executive order says that "fostering greater and more timely renewable energy development means California energy agencies must establish a more cohesive and integrated statewide strategy" that involves, among other things, "encouraging technically and economically feasible distributed energy opportunities." Moreover, the executive order uses technology-neutral language -- in stating that "[s]tate government agencies are hereby directed to take all appropriate actions to implement this target [33% renewable energy by 2020] in all regulatory proceedings . . ." – which also signals that a broad array of renewable energy generation techniques are to be encouraged by the affected agencies, including distributed generation. The executive order does not require that the DRECP turn a blind eye to consideration of alternatives to utility-scale renewable energy generation, such as distributed generation. The "mandate" that supposedly compels the four REAT agencies to eliminate distributed generation as an alternative does not in fact exist.²

² Well-informed and well-respected public officials – and the California Energy Commission itself (which is one of the four REAT agencies) -- have stated that the 33% Renewable Portfolio Standard (RPS) has already been met.

Similarly, California Public Utilities Code Section 454.5(b)(9)(C) does <u>not</u> enshrine the 33% RPS as the sole means of achieving energy efficiency. Rather, this Section requires that an electrical corporation "shall first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible."

To the same effect is the "loading order" established by the CPUC and CEC. The loading order for electricity procurement is:

First Priority: Energy Efficiency and Demand Response.

Second Priority: Remote Procurement of Renewables, if needed.

At the August 5,2014 CEC Workshop on Integrating Environmental Information in Renewable Energy Planning Processes, Ed Randolph, the chief of the Energy Division of the PUC, stated (on page 23: lines 13 -16 of the transcript thereof) that "[i] think this [a discussion of how the history of the environmental screening has played a role in the larger planning activities] is an important conversation at this particular moment in time because, as several of you have mentioned, *we're by and large at the 33% goal in terms of procurement.*" (Emphasis added.)

The California Energy Commission's "Tracker" states that currently operating renewable energy projects in California provide approximately 30.3% of the state's demand forecast for 2020. The CEC Tracker states that, "[a]s of June 30, 2014, the Energy Commission estimates that 20,500 MW of RPS-eligible renewable capacity is operating in California." When this 20,500 figure is divided by the total projected "Mid Energy Demand Scenario" for 2020, of 67,550 MWs (as per Table 1 of the CEC Tracker), it yields a figure of 30.3%.

These assessments that the 33% goal has been met *exclude* renewable energy generated from "distributed generation" sources such as roof-top solar and community solar. Paul Douglas, the Supervisor for Renewable Procurement and Resource Planning for the California Public Utilities Commission, stated at the above-mentioned August 5,2014 CEC Workshop that "the RPS Calculator is in for a very significant overhaul," noting that current methodology only measures generation—it fails to measure transmission impacts, that the Calculator also fails to reflect changes in technology, costs and resource potential, that all of California is suitable for solar, not just the desert, and that there are many opportunities throughout California to connect to renewable energy sources.

This strong acknowledgement of California policy-makers and planners that the current RPS goal has already been met, and that the Calculator itself is due for an overhaul, calls into very serious question the DRECP's premise that it is narrowly charged with a planning for 20,000 MW of utility-size renewable energy in the desert. For this reason, the DRECP must fundamentally rethink its currently stated "purpose and need."

Taking its cue from PUC Code Section 454.5(b)(9)(C), the CPUC has, with the direct involvement of California utilities, created the California Energy Efficiency Strategic Plan (CEESP).

The CEESP presents a "single roadmap to achieve maximum energy savings across all major groups and sectors in California," by implementing rooftop solar, and bold appliance and building efficiency standards.

The CEESP has set ambitious 2020 energy efficiency and rooftop solar targets for existing and new residential, commercial, and industrial buildings in the CEESP. It prioritizes energy efficiency and rooftop solar consistent with state law and the loading order (detailed above). These CEESP targets must be incorporated into each utility's biennial Long Term Procurement Plan in the current planning cycle at the CPUC.

Clearly, California's tilt toward site-specific generation and aggressive innovations in efficiencies and conservation is a practical reality, not merely a set of abstract goals. By making its interpretation of the RPS as the dominant driver of its Purpose and Need, the draft DRECP thereby eliminates California energy policies which are at least equally as important as the RPS standard.

The same result obtains when one examines the statutory and regulatory mandates applicable to the REAT agencies themselves; these mandates require the agencies to fashion their purpose and need statements in a way to allow the inclusion, rather than the exclusion, of alternatives which are reasonable and feasible and environmentally sound.

The National Environmental Policy Act directs the BLM to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources;…" (NEPA Sec102(2)(E))

This same Section requires the BLM to do an analysis of "Reasonable alternatives includ[ing] those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."

Similarly, according to the draft DRECP, the U.S. Fish and Wildlife Service is charged with "designing alternatives for a renewable energy program and conservation strategy for all public trust resources, including natural communities, wildlife, and special-status species consistent with the conservation objectives under the ESA, NEPA, Migratory Bird Treaty Act, Eagle Act, and other applicable federal laws, regulations, and policies."

The two California REAT agencies' self-described task is to: "Reduce the biological and other environmental impacts of future utility-scale renewable energy developments in the Plan Area by designating appropriate areas for renewable energy development within the context of a landscape-scale conservation plan that are sufficient to accommodate the foreseeable demand for renewable energy in the DRECP through 2040", and

"Provide for the long-term conservation and management of Covered Species within the Plan Area and preserve, restore, and enhance natural communities and ecosystems in which those species are found by focusing renewable energy development away from areas of greatest biological importance or sensitivity; coordinating and standardizing biological avoidance, minimization, mitigation, compensation, conservation, and management requirements for Covered Activities within the Plan Area; and taking other actions to meet conservation planning requirements in state and federal law."

The DRECP's refraining from taking any of the foregoing points into consideration has resulted in an information void. At the Desert Advisory Council (the "DAC") meeting on March 15, 2014, DAC member April Sall pointed to the DRECP's presupposition of the need for 20,000 MW of utility-scale renewable energy in the desert, she predicted a good deal of public resistance and a lot of questions from the public regarding these assumptions, and she stated: "[t]he REAT team is essentially setting policy to make utility-scale renewable energy development in the desert the model for meeting the state's 33-percent goal" [Ex. A in the Appendix to this letter (3/15/14 Transcript), 112:25-113:3]. She urged that the REAT agencies come forward with data regarding how much renewable energy was already being generated by such alternative means as rooftop solar, and that this data cover the entire state [Ex. A, 111:14-112:21].

Teri Watt, speaking for the Governor's office, replied, in part: "There are definitely gaps in information....There are probably gaps in what we know about what local governments are producing on the renewable end, especially rooftops. But I know a focus of the governor's office and the Office of Planning and Research is to try to go find the best ways to assemble the information." [Ex. A, 116:3-10].

Unfortunately, the Draft DRECP does not redress the DG information gap, does not identify this information gap as a problem to be redressed, and does not point to this information gap as a reason to scale back its goals or phase in its proposals. To the contrary, the DRECP simply treats this all-important variable as a non-issue.³

³ The California Energy Commission ("CEC"), one of the REAT agencies, has not plugged the gap, so far as may be determined. Its website posts a renewable energy tracker, but this

As a result, and as further discussed below, the DRECP has greatly overstated the amount of desert acreage that it believes should be set aside as DFAs for development of utility-scale renewable energy generation capacity.

In the section describing Distributed Generation (II.8 – 7 and 8), the DRECP: (1) acknowledges that Distributed Generation "will be needed to meet California's RPS and climate change goals, along with other energy resources and energy efficiency technologies" [Chapter II.8-7]; (2) cites the benefits of Distributed Generation as including "local electricity reliability, elimination of the need for some new transmission lines, and compatibility with urban areas" [II.8-7]; and (3) acknowledges that "[t]he state is actively working to overcome barriers to the development of distributed renewable energy generation," which includes the CEC's "working with a variety of stakeholders, including the California Public Energy Commission, the California Independent System Operator, community and environmental justice groups, and federal agency partners, to implement the recommendations of the [CEC's 2012] Renewable Energy Action Plan and accelerate the development of distributed renewable energy generation in California."

The DRECP nevertheless dismisses Distributed Generation, citing purported technological and economic barriers to its implementation.

In that regard, the DRECP concludes (at II.8 -7 and 8) that Distributed Generation "cannot meet the goals for renewable energy development" because: (1) the "grid planning framework is disjointed and fails to adequately consider or plan for the potential grid impacts or benefits of local renewables;" (2) unless "managed appropriately, the integration of local renewable energy can impact safe and reliable operation of distribution grids. Integration is hindered by a lack of information about the capacities and constraints of existing distribution grids;" (3) even though California has programs in place that "promote widespread development of customer-side systems . . . many residents and businesses are still unable to buy or lease equipment or purchase renewable energy," and federal tax incentives "and procurement programs stimulated rapid development but may expire or neglect key technologies . . .;" (4)

tracker appears to be focused on RPS-eligible renewable energy only. Further, in 2007 the CEC commissioned and received a well-researched study known as the "PIER study," **which concluded that California has 68,000MW of reasonable Distributed Generation potential**. However, the PIER study was absorbed into the CEC in 2011, and seems to have disappeared at that point; the CEC has made no apparent attempt to follow up to determine whether the PIER report's projections of penetration of Distributed Generation were being borne out in actuality.

interconnection of small-scale generation "to the power grid functions as a source of significant uncertainty and inefficiency;" and (5) "many cities and counties do not consider renewable energy in the planning codes and requirements . . . [l]ocal governments cited a lack of funds and time to update codes to address local renewable energy and the difficulty in keeping pace with the rapid development of renewable energy technologies."

However, the DRECP does not bring any real analysis or data study to support these five above-cited rationales. The current data show that the technical barriers to high-saturation DG have been sharply reduced. In fact, the California legislature and the CPUC have in recent years adopted a series of programs essentially compelling that first attention be given to expediting the absorption of widespread DG into the grid (as will be discussed below, they include the Community Choice Aggregation Law, the California Energy Efficiency Strategic Plan, Distribution Resource Plans (under P.U.C. Code Section 769), AB 811 and the Green Tariff Shared Renewables Program (AB 43)), all of which demonstrates that points (1), (2) and (4) are not well taken.

Regarding point (3) – the DRECP's assertion that many people lack the money to buy or lease Distributed Generation systems (like rooftop solar) – the DRECP does no analysis or comparison of or between the costs of rooftop solar versus the tens of billions of dollars needed to develop 20,000 MWs of new utility-scale projects, and to construct the thousands of miles of transmission lines (and substations and related support facilities) needed to connect them to the grid. The DRECP assumes, without analysis, that the state's utility ratepayers, who would ultimately foot this enormous bill, would be willing and able to bear such costs.⁴

Point (5) is unsupported as well. The DRECP refers to a purported lack of local codes by "some local governments" regarding Distributed Generation, as a reason why DG would be slow to be implemented. The DRECP does not identify the "local governments" supposedly in question or give any indication as to how many of them there are. In any event, there cannot be any appreciable number of them in light of the fact that Distributed Generation has been around for some time, and given that counties in the Plan Area, such as San Bernardino County, have participated in or are participating in CEC-funded programs aimed at revising the existing renewable energy elements of their general plans. The City of Lancaster, by way of another example, has instituted a Community Choice Aggregation plan, under the auspices of long-

⁴ A report by a well-respected analyst, Flynn Resource Consultants, Inc., estimates that the new transmission lines called for in the DRECP, which are needed to handle the utility-scale renewable energy projects it seeks to fast-track into DFAs, would have a capital cost of about \$10 billion to \$22 billion; this estimate is only partial because it covers <u>only</u> the 500kV lines.

standing California legislation, under which the city would become the power-purchasing authority for its residents, and under which solar rooftop generation, among other things, is incentivized.

Further, local governments would have to consume far more time and money in addressing applications for utility-scale projects – given the enormous impact they have on the surrounding region – than they would in approving far less intrusive Distributed Generation proposals.

The DRECP suggests that Distributed Generation remains a key component of the DRECP. Specifically, the DRECP states (at II.8-8) that, consistent with the efforts being made by state and federal governments to accelerate the development of Distributed Generation in California, the "DRECP Renewable Energy Calculator assumes a high level of rooftop solar distributed generation . . . [and] anticipates 7,000 MW of small rooftop solar distributed generation and more than 9,000 MW of ground-mounted distributed generation (only approximately 25% of which would be assumed to be located in the DRECP, and 1,700 MW of which would actually be "utility-scale distributed generation rated at 20 MW").⁵

In making these assumptions and estimates, the DRECP fails to cite reliable data or studies. Its 7,000 MW estimate for rooftop solar is exceedingly small given the growing consensus in the business community and among the Legislature and the state's regulatory agencies that small-scale solar is fast becoming the predominant power source for the state, and that utility-scale energy projects are rapidly becoming dinosaurs.

That the DRECP is so resolute in not carrying Distributed Generation forward runs contrary to its own acknowledgment that "any prediction of the profile of the electricity sector decades from now is highly speculative [Section 2.1, p. 16 of the Executive Summary]."

⁵ The DRECP Acreage Calculator (at p. 21) states that (under the "July 2012 Scenario"), of the 41,979 MW of zero-carbon energy required in 2040 due to a change made in the "1990 Baseline," only 10,000 MW would be "Customer-side DG." Even that figure is misleadingly high – in the adjacent column for "MW in DRECP," it says "N/A," which appears to be saying that no "Customer-side DG" is posited for the DRECP plan area. In short, the DRECP is making the very dubious assumption in its calculator that non-utility-scale Distributed Generation will not, over the 25-year life of the DRECP, increase its share in the state's energy generation portfolio.
In that regard, the DRECP fails to address any of the laws and programs which are leading an accelerating movement away from utility-scale projects, declines to take into account how those laws and programs have already affected the energy industry and regulatory landscapes, and provides no assessment as to how such laws and programs will continue to reshape our energy future. Those laws and programs are as follows:

A. The Community Choice Aggregation Law (Assembly Bill 117).

California's Community Choice Aggregation Law, or CCA (embodied in Public Utilities Code Sections 218.3, 331.1, 366, 366.2, 381.1, 394 and 394.25) allows counties and cities to procure and provide alternative energy supplies for their residents in competition with electrical utilities, while keeping those providers in place to maintain needed transmission and distribution services. By forming CCAs, counties and cities can incentivize the development of small-scale renewable energy generation, the installation of rooftop solar on homes and businesses and energy efficiency programs.

According to the LEAN Energy US (Local Energy Aggregation Network) website (www.leanenergyus.org), Sonoma County, Marin County and San Francisco County have CCAs underway. Monterrey and Santa Cruz Counties have partnered to form Monterrey Bay Community Power. Local leaders committed to launching the first southern California CCA have formed the San Diego Energy District Foundation – the San Diego County Board of Supervisors unanimously approved funding for a CCA study. Within the DRECP Plan Area, the City of Lancaster has adopted a CCA. Many more counties and cities are expected to follow.

Further, according to the LEAN Energy US website, five other states have adopted CCAs, including Illinois, which has "experienced the fastest rate of CCA adoption, driven primarily by rate savings of 25% -- 30% through June, 2014. Over 600 municipalities have passed aggregation referenda since 2011, including the City of Chicago which now has the largest program in the Country."

The DRECP is remiss in not considering the impact of CCAs on a shift of new and existing residential and commercial development to behind-the-meter small-scale solar energy generation. The DRECP, as it fashions an accurate set of assumptions and a correctly articulated "purpose and need," must take into account the existing and anticipated future effect of the CCA law.

B. The California Energy Efficiency Strategic Plan.

The DRECP has not taken California Public Utilities Code Section 454.5(b)(9)(C) into consideration. This Section requires that an electrical utility corporation "shall first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible."

Tasked with making this statutory requirement a reality, the CPUC has initiated several proceedings⁶ out of which has emerged the all-important California Energy Efficiency Strategic Plan ("CEESP"). The CPUC – not usually noted for its rhetoric -- calls the CEESP the "Big Idea" approach. The "Big Idea" is this: Zero Net Energy (ZNE) for all new residential construction by 2020 and for all new commercial construction by 2030, and for 50% of all new construction by 2030.

Utilities regulated by the CPUC are compelled to show compliance with Section 454.5(b)(9)(C), and this compliance almost certainly will entail a major reliance on new efficiencies, conservation measures and technological innovations at the level of individual building structures. The DRECP nevertheless fails to address the effect of this program, and the results of compliance with the program, on the grid load assumptions and projections which are at the core of the DRECP, and which in turn determine its articulation of purpose and need.

C. Distribution Resource Plans Under Public Utilities Code Section 769 (Enacted by AB 327).

The DRECP does not account for the fact that Public Utilities Code Section 769 requires investor-owned utilities, like Southern California Edison (SCE) to come up with a plan to integrate cost-effective Distributed Resources, which are defined as "distributed renewable energy resources, energy efficiency, energy storage, electric vehicles, and demand response technologies."

The CPUC took up this mantle in its Case No. 14-08-013, which relates to "Distribution Resources Plans." In its rulings and orders thus far, the CPUC has described the goal as maximizing penetration of Distributed Generation while minimizing the need for transmission and distribution upgrades. As the CPUC specifically notes, this is a revolutionary approach. because for the first time it takes into account customer-side interactions, and not just meeting load growth and peak consumption.

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These PUC proceedings include D08-09-040, 08-07-011 and 10-09-047.

The investor-owned utilities must come up with their initial plans by early summer, 2015. As antithetical as the five statutory elements of Distributed Resources might be to the old utility model of doing business, the IOUs must propose specific plans to *maximize* Distributed Generation, while *minimizing* the old utility staples of new transmission and distribution facilities and upgrades. The DRECP has not considered that the plans that the utilities (and PUC) come up with are likely to lead to an enormous reduction in the demand on the grid, which in turn requires a re-couching of the DRECP's assumptions and, it follows, a probable re-casting of "purpose and need," which in its current form is single-mindedly focused on utility scale, centralized generation.

D. California's Assembly Bill 811 (July 21, 2008).

The DRECP does not consider AB 811, which authorizes cities and counties to designate areas within which willing property owners may use the property tax assessment process to contract for the installation of distributed energy generation, as well as energy efficiency improvements. These financing arrangements would allow property owners to finance renewable generation and energy efficiency improvements through low-interest loans that would be repaid as an item on the property owners' property tax bills.

The DRECP has, nevertheless, declined to take into account the effect of this program, which clearly points to a further reduction of demand on the grid.

E. Green Tariff Shared Renewables Program (Assembly Bill 43).

The DRECP also ignores California's AB 43, which created the Green Tariff Shared Renewables program. It incentivizes groups like renters, churches, schools and businesses to build unique, on-site shared solar renewable energy projects, with a specific portion of the project capacity to be located within "disadvantaged communities" in order to encourage job creation.

The DRECP fails to consider that Plan Area governments may, under an AB 43 program, fashion their land use general plans to encourage and streamline development applications seeking to take advantage of this program, which would result in the creation of Distributed Generation facilities, the reduction of energy demand, and the creation of much-needed jobs in their poorer communities.

Similarly, the DRECP has overlooked numerous informational guidelines and programs that explain exactly how smart renewable energy planning, which includes putting CCAs in place, can be implemented and the enormous benefits that flow from them.

For example, the U.S. Department of Energy's Community Energy Strategic Planning (CESP) lays out a step-by-step process for local governments to create a comprehensive, long-term energy strategy, and it identifies various sources of funding, including block grants, loan programs and technical assistance needed to implement it.

Another example is the Community Solar Program (CSP), which is a program created by the Los Angeles Department of Water and Power (LADWP) to incentivize the development of residential and commercial rooftop solar systems and establish a feed-in tariff program. The LADWP has published an outline of this program and is currently soliciting comments on it.

Another example is the Interstate Renewable Energy Council (IREC), which has instituted shared community and cooperative solar programs across this country. Based on this "boots on the ground" experience, IREC has prepared and compiled, and will share, reports, best practices guidelines and regulatory policy recommendations and innovations that have become foundational elements in regional, state and federal policy-making efforts, all of which have enabled millions of people to gain access to distributed energy.

Finally, LEANEnergy US (Local Energy Aggregation Network), a non-profit organization dedicated to the accelerated expansion of CCAs, has broad experience and knowledge concerning how CCAs operate and regarding the environmental benefits and enormous cost savings they generate for their participants.

As noted above, there is a growing and widely-known consensus in the business community, and in the energy industry, that small-scale solar is fast becoming the predominant power source for the state, and that utility-scale energy projects are rapidly becoming outmoded.

According to the "2015 State of the Electric Utility Survey Results (Here's What the Utility of the Future Looks Like, According to Over 400 U.S. Electric Utility Executives)," which is published by Utility Dive Brand Studio in association with Siemens, utilities are moving away from "the traditional vertically integrated utility model toward a more distributed, service-based model." In other words, according to the survey, Distributed Generation is seen as the biggest driver of industry growth, while "[t]he opposite of distributed energy – centralized generation – seems to offer little promise of future revenue to utilities. Once a profit center, central station power is viewed by only 8% of utilities as their biggest growth opportunity." The reason for this pronounced shift: "In 2015, the U.S. electric utility is in a state of transition . . . Emerging technologies, shifting consumer expectations, and new energy economics are causing the industry to rethink the business and regulatory models that have served them for over 100 years." Relevant pages from the above-referenced survey are Ex. B in the Appendix to this letter.

Edison Electric Institute, the utilities' trade group, warned members (in a January 2013 report) that Distributed Generation and companion factors have put them in the same position as airlines and the telecommunications industry in the late 1970s. Essentially the same point was made in an article in Bloomberg Business, entitled "Why the U.S. Power Grid's Days Are Numbered" (August 22, 2013) (a copy of this article is attached as Ex. C in the Appendix to this letter).

David Crane, the CEO of NRG Energy – an energy giant with more than \$6 billion in assets world-wide -- agrees that the old model of the U.S. electrical grid, with its centralized power plants and lengthy transmission lines, is doomed to obsolescence (according to the Bloomberg Business article mentioned in the previous paragraph). He said that in about the time it has taken cell phones to supplant land lines in most U.S. homes, the grid will become increasingly irrelevant as customers move toward decentralized homegrown green energy, and that some customers, particularly in the sunny West and high-cost Northeast, already realize that "they don't need the power industry at all." Mr. Crane's championing of decentralized Distributed Generation is particularly noteworthy, given that NRG Energy is the developer of the Ivanpah solar thermal plant.

The rooftops and parking lots on which DG depends are in close proximity to the consumer, and they present none of the vexing environmental problems presented by large-scale energy plants. UCLA's Luskin Center for Innovation did a study showing that the rooftops in Los Angeles County alone could accommodate over 22,000 megawatts of Distributed Generation solar panels. A 2009 Black & Veatch and Energy and Environmental Economics, Inc. report to the CPUC found 11,543 megawatts of large (greater than 1/3 acre) urban rooftop capacity and 27,000 megawatts of ground-mounted capacity near existing substations. A June 2010 update of the study found that California has a capacity of 55,000 megawatts of decentralized solar photovoltaic (over 100,000 GWh/ year). The above-referenced UCLA study is available at http://innovation.luskin.ucla.edu/sites/default/files/Bringing%20Solar%20to%20Los%20Angeles .pdf; the Black & Veatch report is available at http://innovation.luskin.ucla.edu/sites/default/files/ltinyurl.com//45n2j7x.

The first sentence of the CEC's Distributed Generation Strategic Plan aptly sums up this state of affairs quite nicely: "We are at the threshold of reinventing the electric power system."

None of this information has found its way into DRECP's analysis of the significance of Distributed Generation, notwithstanding that it is readily available. Yet all of these programs and economic and technological trends are a required part of what an EIR must consider as it makes forecasts and couches the "purpose and need" it is purporting to plan for.

9. <u>The Draft DRECP/EIS/R Fails to Consider a Reasonable Range of Alternatives,</u> <u>Including Brownfields, Distributed Generation, and Various Hybrids of These</u> <u>Two Which Include Energy Efficiencies and Conservation Measures.</u>

"CEQA requires that an EIR, in addition to analyzing the environmental effects of a proposed project, also consider and analyze project alternatives that would reduce adverse environmental impacts. [Citations.] The [Guidelines] state that an EIR must 'describe a range of reasonable alternatives to the project...which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project...' [Citation.] An EIR need not consider every conceivable alternative to a project or alternatives that are infeasible. [Citations.] (California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 988.)

The BLM shall "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources;..." (NEPA Sec102(2)(E)). NEPA further requires the BLM to analyze "reasonable alternatives includ[ing] those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."

The DRECP has failed to discharge its responsibilities, in its decision not even to consider Alternatives including Brownfields (see discussion under headnote 7 above) and distributed generation, either alone or together or further mixed with various conservation and efficiency measures.

As discussed in detail under headnote 8 above, a substantial reason for this deficit in analysis lies in the DRECP artificially narrowing its definition of "purpose and need" in such a way as to foreclose consideration of alternatives which are not only feasible, but which offer benefits both to the renewable energy picture and to the desert environment not offered by any of the Alternatives that the DRECP does consider.

By identifying 20,000 megawatts of utility scale renewable energy in the DRECP region as the primary purpose and need, the DRECP eliminates alternatives much stronger than the ones the DRECP chooses to consider, because any alternative that does not emphasize large scale renewable energy facilities by definition does not suit the stated purpose and need.

One essential element of current California statutory and regulatory policy is distributed generation – that is, energy generated on a site-specific basis, that primarily serves the site location and (typically) sends any surplus energy to the grid. The DRECP dismisses a DG alternative, stating (on page 11.8-7 of the Executive Summary): "For a variety of reasons (e.g.,

upper limits on integrating distributed generation into the electric grid, cost, lack of electricity storage in most systems, and continued dependency of buildings on grid-supplied power), distributed energy generation alone cannot meet the goals for renewable energy development."

But this curt dismissal contradicts current data – not to mention the CEESP and other government programs – showing first that much DG can be designed to be consumed on site and thus would not need to be delivered to the grid, and second that the utilities have already made much progress on smart grid programs which enable bidirectional flow. These trends – which again, are being dictated both by the market and by statutory and regulatory policy – require a full analysis and comparison of a DG alternative, rather than summary rejection.

To attempt to justify giving short shrift to a DG alternative, the DRECP relies heavily on a conference convened by Governor Brown at UCLA in July 2011. But the speakers at this conference argued for a spectrum of positions; many respected experts presented persuasive cases at that Conference that the grid, even before the upgrades for full two-way flow, could handle 20,000 MW of customer-side DG solar without causing any backflow on the grid. (See also, e.g., Powers, December 16, 2009 opening testimony, CEC's Ivanpah Solar Electric Generation System proceeding, pp. 7-8, <u>http://tinyurl.com/p2s5zg8</u>). This is *before* taking into account upgrades to the grid and other advances which are reasonably to be expected during the 25-year planning horizon.

Thus, the DRECP is required by CEQA and NEPA to make DG one of the alternatives and to do a genuine study and comparison of this alternative as opposed to the other alternatives posited by the DRECP, all of which depend on siting 20,000 of utility-scale centralized generation in the DRECP area.

An additional flaw in the DRECP's short-shrift approach to DG is found in its arithmetic and assumptions in Appendix F3. There the DRECP purports to estimate the effect on the demand for centrally-generated electricity, depending on different scenarios for the development of customer-side solar. Even under its most "aggressive" assumption about increases in DG solar, the DRECP assumes only a very minor net reduction in the demand for utility-scale solar PV and thermal. This arithmetic doesn't work. Further, the implementation of the CEESP Alternative would result in customer-owned DG solar increasing at a rate of approximately 15,000 to 20,000 MW per decade beginning in the 2011-2020 ten-year period. If the total 2040 MW capacity of wind, geothermal, and biofuels (for California) is held constant across the three customer-provided DG solar scenarios, increasing the amount of customer-provided DG solar from 10,000 MW in the base case scenario to approximately 30,000 MW by 2040 would completely eliminate the need for any of the combined 16,323 MW of utility-scale PV, utility scale solar thermal, wind, or utility DG in the DRECP base case scenario.

Furthermore, the DRECP – having done no analysis of the DG alternative – draws the non-sequitur conclusion that DG does not serve the purpose and need of "long-term conservation and management of Covered Species within the DRECP". Vol II, page 8-3. The short answer to this is that a DG alternative would put much less stress on Covered Species and other conservation values because it would involve a sharply reduced or eliminated allocating of desert lands to large-scale RE development and the extensive new transmission systems which would have to follow. The "need" for the "conservation" portion of the DRECP is driven in major part by the rather illusory perceived "need" to sequester 2 million acres for large-scale RE development.

As discussed above under headnotes 7 and 8, respectively, the DRECP overlooks both brownfields, and a mix of efficiency and conservation measures and innovations (an example being the "ZNE" aspect of the CPUC's CEESP program), as elements of an Alternative to be considered.

All of these elements – distributed generation, brownfields, and efficiency/conservation programs – must be considered as one or more feasible alternatives.

10. <u>As to Groundwater, the Draft DRECP Fails to Establish a Proper Baseline,</u> <u>Fails to Address Environmental Impacts, and Impermissibly Attempts to Defer</u> <u>the Fashioning of Viable CMA's.</u>

Under Section 15151 of the CEQA Guidelines, the REAT agencies are required to prepare an EIR with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure. [emphasis added]. <u>Town of Atherton v. California High-Speed Rail Authority</u>, 228 Cal.App.4th 314, 343 (2014).

The DRECP states in its Executive Summary, at Table 9 that the Preferred Alternative will have a "less than significant" impact on groundwater in terms of solar and wind renewable energy facilities. This conclusion is without foundation, for the Draft DRECP fails both (1) to establish a proper baseline for groundwater, and (2) to conduct an analysis of the existing data

regarding effects on desert groundwater of the construction and operation of utility-scale renewable energy plants.

This conclusion is also at odds with observations made in the DRECP about the pronounced negative that the new renewable energy projects would have on the desert's groundwater basins. For instance, the DRECP acknowledges that its DFAs would be located primarily on already overdrafted groundwater basins from which the enormous volumes of water needed -- for the construction, maintenance and operations of large-scale generation facilities -would have to be drawn. In that regard, it concedes (at IV.6-24) that "[d]evelopment would occur in 35 groundwater basins, that 14 of them are stressed or in "overdraft or stressed," that "[m]ost (97%) of the developed area is within four ecoregion subareas [the High Desert areas of Los Angeles and San Bernardino Counties and the Imperial Valley]" -- which are the most populated areas of the California desert⁷ -- and that "increased groundwater use in these sensitive basins can adversely affect water supplies and exacerbate impacts associated with overdraft conditions and declining groundwater levels." Moreover, the Draft DRECP selects the Pinto/Lucerne/Eastern Slopes - part of this DFA is located in overdrafted groundwater basins -to bear a greatly disproportionate amount of new generation development. Table IV.6-2 projects 7,000 acres of new generation in this area to generate 2,000 megawatts, which is a full 10% of the DRECP's 20,000 MW goal.⁸

⁸ Just as the DRECP provides no rationale whatsoever as to why new energy development must be radically concentrated in "Pinto/Lucerne/Eastern Slopes," the DRECP provides no justification as to why the desert should bear the sole burden of meeting the 20,000 MW goal, especially given that all areas of the state have ample renewable energy resources (this point is discussed further elsewhere in this letter). Further, as will also be discussed elsewhere in this letter, the DRECP provides no explanation as to why 20,000 MWs of large new energy plants are needed in the first place, especially given that the state has already reached, or come close to reaching, its goal of having 33% of its energy come from renewable sources, and given that distributed generation is fast becoming the state's prime source of renewable energy.

⁷ When the DRECP's map of the Preferred Alternative DFAs (which, along with transmission corridors, would entail approximately 177,000 acres of "ground disturbance" (IV.7-215)) is superimposed on top of the DRECP's Overdraft Groundwater Basins map, one sees that (with small exceptions) all of the High Desert DFAs – from the Antelope Valley east to the Johnson Valley -- are located within the boundaries of already overdrafted groundwater basins. Indeed, the DRECP concedes: "[u]nder the Preferred Alternative, development in BLM lands can affect groundwater in 12 basins characterized as either in overdraft or stressed" [Section IV.6 of the DRECP].

The DRECP also states that the total estimated water use for the new projects it would foster would be 91,000 acre-feet per year (IV.6-24), and that that the "[r]enewable energy facilities permitted under the DRECP could influence the quantity and timing of groundwater recharge because construction would include grading the land surface, removing vegetation, altering the conveyance and control of runoff and floods, or covering the land with impervious surfaces that alter the relationships between rainfall, runoff, infiltration and transpiration [IV.25-45]." Solar energy – which is the renewable technology preferred in the DRECP -- "would result in the largest amount of grading so it would have the largest impact on groundwater recharge among the renewable technologies permitted under the DRECP [IV.25-45]."

According to the DRECP, the "use of groundwater for renewable facilities permitted under the DRECP would combine with [other uses of groundwater]... to result in a cumulative lowering of groundwater levels affecting basin water supplies and groundwater [IV.25-46]."

The DRECP also takes note (IV.25-45) of the "[p]opulation growth and anticipated development summarized in Section IV.25.2.2," including "future residential development that would also use a large amount of groundwater continuously [IV.25-46]," that would result from anticipated renewable energy and other projects, as further contributing to the drawdown of desert ground water basins.

Even more ominously, the DRECP notes that the proposed renewable energy projects would result in "compression [of groundwater basins that would reduce] the volume of sediment beds and lower land surface elevations, which can damage existing structures, roads, and pipelines; reverse flow in sanitary sewer systems and water delivery canals; alter the magnitude and extent of flooding along creeks and lakes. This compression of clay beds [that make up groundwater basins] also represents a permanent reduction in storage capacity" [IV.25-47]. The proposed renewable energy plants and transmission facilities "could also cause water-level declines in the same groundwater basins and contribute to the migration of the saline areas of groundwater basins" [IV.25-47].

Nevertheless, the DRECP makes no study of the impact on the desert's aquifers of siting 20,000 MWs of new generation facilities, nor does the DRECP include any real baseline data concerning the health or sustainability of those basins under current demands, or when the effects of an ongoing drought of historic proportions is factored in.

The DRECP must: (1) conduct and incorporate a comprehensive, plan-wide assessment as to how the siting of 20,000 MWs of new renewable energy generation would affect the groundwater basins, as well as an analysis as to how precisely each of them would be impacted, i.e., to what degree would their sustainability be threatened; and (2) conduct a baseline study as to the current status of those aquifers – how much water is each of the groundwater basins

currently holding? How much water is being pumped out of each basin by the residents and businesses currently relying upon them? How much water can be expected to recharge the basins, either from natural sources or from the State Water Project? Are the groundwater basins sustainable in view of the demands currently being made on them, and in view of their recharge rates, or are they approaching collapse? What is likely effect of the ongoing, historic drought on our groundwater basins?

Instead of doing this, the DRECP states (at IV.6-32) that actual groundwater impacts would be assessed only on a project-by-project basis, by way of Conservation and Management Actions (CMAs) that would be adopted by the Coordination Group, prior to certification of a particular project, for the purpose of assessing whether the project would exacerbate any existing overdraft.⁹ The DRECP acknowledges that "CMAs were developed for BLM lands only, but nevertheless presents an analysis that "assumes that all CMAs would be applied also to nonfederal lands [IV.6-32]." This appears to be wishful thinking, especially given that the DRECP does not require that such CMAs be prepared by any particular person or agency, nor does it specify the process for approving them or where the funds needed to pay for their preparation and monitoring would come from. In short, there is no assurance in the plan document that any CMAs will ever be created or that, if they are, they would properly address impacts on groundwater or their remediation; it should be expected that, if the task of preparing CMAs is to be left to developers, they would be quite resistant to preparing full-blown CMAs obligating them to undertaken costly mitigation measures.

The approach of relying on yet-to-be-drafted and ill-defined CMAs, Water Assessment Plans and Mitigation Action Plans is inadequate, as a matter of science and as a matter of law.

It is also worth noting that there is a long-standing and very distressing pattern and practice of developers getting away with poorly supported, minimal numbers of projected water use in their permit applications, followed by records of actual use that are sometimes ten times the amount stated in the applications.

⁹ As part of such assessments, the period of "aquifer recovery after project decommissioning would" have to be specified, and groundwater extraction cannot contribute to exceeding the estimated yearly yield for the basin without "exceeding the long-term recharge of the basin . . ." Further, the hydrology of the site must be designed to enhance percolation. Also required would be a "Water Supply Assessment for all projects," as well as "Water Monitoring and Reporting Plans" and "Mitigation Action Plans." This is obviously too-little, too-late – these kinds of inquiries must be done up-front as part of the DRECP if it is to be a proper program EIR/S.

The DRECP is a program EIR. After a program EIR is approved there is no road down which to kick the can. If the proper analytic work is not done at the program EIR stage, there will be little opportunity for it at the later, project-level stage.

The subject of groundwater impacts, usage and mitigation cries out for landscape-level analysis, because the deleterious effects of siting 20,000 MWs of new energy plants and transmission lines cannot feasibly be studied, measured, or mitigated for on an incremental, project-by-project basis. By way of a rough but instructive analogy, a pack-a-day smoker can typically enjoy an additional cigarette – probably an entire carton – without necessarily showing any immediate ill effects, but, if his health is assessed over a twenty-year period, the impacts become apparent and undeniable. To take the analogy a step further, you cannot "mitigate" the long-term, unavoidable health effects of smoking, just as the cumulative effect of siting 20,000 MWs of new energy plants and transmission lines in an increasingly arid, water-starved desert cannot be mitigated away - it is inevitable that the resulting drawdown on already-depleted groundwater basins would render them increasingly unsustainable and incapable of storing water. "Mitigation" measures can be posited with respect to those activities immediately on hand - such as, "consider refraining from smoking that cigarette" or "provisionally reduce your energy plant's draw on groundwater" - but such measures cannot be extrapolated forward as credible "landscape-level" methods for reducing the long-term, cumulative harm inflicted by these activities.

By not conducting programmatic analyses bearing on groundwater impacts and mitigation, the DRECP – which fashions itself as a program EIR – has failed to fulfil the purposes earmarked for such EIRs, which are as follows: "(1) Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action, [para.] (2) Ensure consideration of cumulative impacts that might be slighted on a case-by-case analysis, [para.] (3) Avoid duplicative reconsideration of basic policy considerations, [para.] (4) Allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts, [and] [para.] (5) Allow reduction in paperwork." Town of Atherton v. Cal. High-Speed Rail Authority, supra, 228 Cal.App.4th 314, 343 (2014).

The DRECP nonetheless claims (at IV.6-39) that "most adverse impacts of the DRECP will be minimized by implementation of the CMAs and existing laws and regulations. Further mitigation is required to reduce the following remaining impacts." However, having forfeited its obligation as a program EIR to do a "more exhaustive consideration of effects and alternatives than would be practical...on an individual action", or to consider "cumulative impacts that might be slighted on a case-by-case basis", the DRECP has not established with any specificity the

impacts on groundwater to be mitigated. How, then, can it propose effective mitigation measures?

It can't. And this become immediately clear when one examines the so-called mitigation measures proposed by the DRECP (in Section IV.6.3.2.1.1). These mitigation measures are so general – so poorly delineated – that they provide no practical guidance as to how mitigation would be effected to reduce the impacts on groundwater basins of 20,000 MWs of new development. Nothing resembling a mitigation plan is stated, no clear criteria are laid out and no standards are set, nor are any methods specified for measuring the effectiveness of any mitigation efforts.

For instance, the draft EIR asserts (at IV.6-39) that, if groundwater basins are being depleted by drawdowns from renewable energy projects, Mitigation Measure GW-2a can be adopted ("Minimize Water Use"). But GW-2a makes only the extremely impractical suggestion that "dry cooling for solar thermal" be employed to minimize water use. Mitigation Measure GW-2b says that, if "drawdown thresholds are reached in water supply wells . . .," compensation can be paid and that there can be "pumping reduction or cessation, and providing an alternative water supply." But no "drawdown thresholds" or other necessary details are specified, and there is no indication as to which agencies, if any, would be vested with the right to declare and enforce pumping moratoriums that would effectively (and perhaps permanently) suspend the operations of renewable energy projects. Hence GW-2b is nothing more than a dressed-up iteration of the following common-sense proposition: if too much groundwater is being consumed, pump less or find some other water source.

Mitigation Measure GW-1a (IV.6-39) is similarly devoid of any meaningful guidance. It says only that, in order to combat the fact that renewable energy development would alter the recharge (i.e., re-filling) of groundwater basins, it would require developers "install pervious groundcover" and direct drainage to a "common pervious drainage basin."

By way of another example (at IV.6-40), if basin and site-specific studies confirm that land subsidence has been or might be caused by groundwater pumping, a "Subsidence Monitoring and Reporting Plan" can be adopted – by way of Mitigation Measure GW-3a – to "[p]rovide detailed methodology to establish pre-project land-surface elevations and measure changes that could occur resulting from project construction and operations," or a "Mitigation Action Plan" can be adopted – as per Mitigation Measure GW-3b – to "identify actions to be taken by the developer if subsidence thresholds are reached" that can include "restrictions on, or cessation of, project groundwater use and compensation to landowners for impacts resulting from land surface elevation changes; prompt detection and mitigation will limit the permanent loss of storage capacity to a small fraction of the total capacity." Reduced to their essence, GW-

3a and 3b say nothing more than the following truism: when subsidence is detected, figure out something fast, like pumping out less water, so that it won't get any worse. In any event, the DRECP has made it clear that excessive groundwater pumping has already caused substantial subsidence (Table III.6-1) over some of the same aquifers that would be drawn on for new renewable energy projects in the DFAs, so the DRECP should now include an assessment as to the degree to which new energy development in the DFAs would create further subsidence.

Finally, Mitigation Measure GW-4a (IV.6-40) provides that, if groundwater consumption causes poor-quality groundwater to migrate into an aquifer, "the developer shall identify actions to be taken" which could include restrictions on project water use and compensation to adjacent land owners. Relying on an offending developer to come up with, implement and monitor its own remediation plan – especially one that would depend on a developer voluntarily shutting down operations by curtailing its use of groundwater -- is bad policy, and is unworthy of a Planwide mitigation plan in a programmatic EIR.

In short, the DRECP has no real programmatic mitigation plan in place to address the cumulative impacts of renewable energy development on desert groundwater basins, so there is no principled basis for its "less than significant impact" finding (at, among other places, IV.25-49).¹⁰

"Designating an EIR as a program EIR . . . does not by itself decrease the level of analysis otherwise required in the EIR. 'All EIR's must cover the same general content. [Citations.] (Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency (2000) 82 Cal.App.4th 511, 533.) In considering a challenge to a program EIR, "it is unconstructive to ask whether the EIR provided 'project-level' as opposed to 'program-level' detail and analysis. Instead, we focus on whether the EIR provided 'decision makers with sufficient analysis to intelligently consider the environmental consequences of [the] project."" (Citizens for a

¹⁰ The DRECP's fails to provide any meaningful mitigation guidelines with respect to other serious cumulative impacts that would arise from renewable energy development and transmission corridor construction. For example, the draft EIR states only that, in order to mitigate the projected increase in dust, exhaust emissions, ozone and several types of fine particulates (in a region which is already a state nonattainment area) to a "less than cumulatively considerable" level, developers should be asked to prepare (and self-monitor) abatement plans, to use electrically powered vehicles/equipment, to use of the "best available emission controls," to locate "new stationary air pollution point sources" an "adequate distance" from residential areas (and from other sensitive land uses) and the like (IV.25-30 through IV.25-36).

Sustainable Treasure Island v. City and County of San Francisco (2014) 227 Cal.App.4th 1036, 1052.)

This DRECP's focus on the figurative "trees" -- to the complete exclusion of the "forest" -- means that there would be no meaningful, over-arching analysis as to what the demands of 20,000 MW of new capacity would do to groundwater supplies, while all the while the DRECP would nevertheless be actively incentivizing the development of that new capacity throughout the DFAs.

At the meeting of the BLM's Desert Advisory Committee (the "DAC") on September 27, 2014, in Pahrump, Nevada: certain members openly questioned the wisdom of the "less than significant" impact finding on much the same grounds stated in this letter. The reply of Peter Godfrey, a BLM water specialist who was one of the authors of the groundwater portions of the DRECP, was that, in terms of assessing our aquifers' future sustainability, a long-term time horizon of as much as 30 years is required – that is, after the DRECP's own 25-year lifetime has ended, and perhaps long after the groundwater basins may have passed the point of no return. [Excerpts of Mr. Godfrey's presentation are Ex. F in the Appendix hereto]

If this is indeed true, then the DRECP's attempt to address groundwater at the project level is futile, because the same absence of data and understanding which according to Mr. Godfrey makes program-level analysis impossible will torpedo analysis at the project level. Yet the DRECP pretends that, at the project level, the same questions which are unknowable about groundwater at the landscape level become knowable at the project level. For the project level, the draft DRECP stipulates that the developer must conduct a "Water Supply Assessment", using an arithmetic formula including precipitation, evaporation, transpiration, groundwater outflow. This assessment, in turn, will (says the Draft DRECP) quantify the "existing perennial yield of the basin(s)." II.3-406 to 411. All well and good, except that these variables are the same ones that the DRECP at the program level deems to be unknown and unknowable.

Moreover, it is not true that important, reliable information does not exist regarding the groundwater baseline and the effects of renewable energy projects on groundwater supplies. The Draft DRECP essentially ignores good and reliable current data which clearly have direct relevance both to establishing a groundwater baseline and evaluating the impact of groundwater of 20,000 megawatts of new development. According to statements made by Max Gomberg, climate change advisor to the California Water Resources Control Board (at a recent workshop conducted by the Lahontan Regional Water Quality Control Board): (1) several cities and towns are in danger of running out of water in 60 to 90 day; (2) several dozen communities are on the critical water list, which is 120 to 150 days from running out of drinking water; and (3) domestic wells are already dry and more are expected to dry up as the water table declines (see December

1, 2014 <u>Desert Dispatch</u> article, entitled "Hydrologist urges panel to make water decisions now") [A copy of this article is attached as Ex. G in the Appendix to the instant letter].

The DRECP itself references data having a direct bearing on the groundwater issue. According to the draft DRECP, the Upper Mojave groundwater basin -- which serves the DFAencompassed region around Victorville, Hesperia, Apple Valley and parts of Lucerne Valley – has been sustained by surface water from the State Water Project (Figures III.6-6 and III.6-36) that can no longer be counted on due to the drought. The Upper Mojave basin is among the biggest users of groundwater (Figure III.6-13), and (III.6-58); groundwater pumping has caused land subsidence of "many tens of feet" in basins along the Mojave River, "and further east from the Lucerne Valley to Morongo Valley Region," as well as significant declines in well levels of up to five feet (Table III.6-1).

The Upper Mojave groundwater basin, which underlies much the same region as the adjudicated "Alto" groundwater basin (a designation made by the Mojave Water Agency in its annual Watermaster reports) received, for a time in 2014, only 5% of its requested allocation (according to a December 2, 2014 article in the <u>Desert Dispatch</u>, that allocation was actually reduced to 0% for a time, then brought back up to 5% in light of recent rains -- the 5% allocation is the lowest ever made in the State Water Project's history because a sparse snowpack melted early and most of the state experienced near record lows in rainfall) [a copy of this article is Ex. H in the Appendix to the instant letter]. The Alto basin's allocation from the Mojave Water District has, in turn, been ramped down to 60%. Eventually any water stored in the ground as a sort of "rainy day fund" will run out.

The DRECP's plan-wide analysis on the groundwater issue must take into account the amounts of water typically consumed by utility-scale renewable energy projects during their construction and during their maintenance and operation.

In terms of construction usage, the 550 MW Desert Sunlight 250 project (on 4,400 acres of land) – and the 1,550 acre feet of water allocated to its construction – can be used as a metric. Forty projects of that size would produce just over the DRECP's targeted 20,000 MW in renewable energy. Assuming that those forty projects would use a similar amount of water during their construction, construction of 20,000 MW of new renewable energy projects would consume 620,000 acre feet of water, which equates with approximately 20 billion gallons of water.

In their maintenance and operations, the utility-scale solar projects in the Lucerne Valley DFA under the Preferred Alternative would, according to data from the DRECP, consume almost 1,000 acre-feet of water **per year**, which is enough water to fill four Rose Bowls to the brim. On a DRECP-wide basis, if all 20,000 MW of generation were to come from the least water-

intensive generation method – which is solar PV (as opposed to solar thermal, which requires many multiples more water in cleaning, as well as a great deal of additional water for cooling operations) – and the PV panels were washed only six times per year, the cleaning of the panels alone would consume .15 acre feet per year per megawatt of generation, which would amount to a total water expenditure of approximately 3,000 acre feet per year (20,000 times .15 = 3,000).

None of this information is included in the DRECP's approach to the effects of any of its Alternatives to groundwater.

11. <u>The Draft DRECP Fails to Consider the Most Current and Important Studies</u> <u>Regarding Carbon Sequestration.</u>

But for the issue of climate change, there would be no DRECP. The core driver of the Executive Order is the perceived need to take big steps to reduce the net emissions of GHG into the atmosphere. Volumes III (baseline) and IV (environmental effects) both have chapters devoted to Meteorology and Climate Change, which they purport to study across the six different Alternatives. Appendix P encompasses an analysis of existing research regarding climate change, and it delves into several alternative climate change scenarios as they would play out for various aspects of the desert ecosystem.

One critical aspect of net contribution of GHG to the atmosphere is the part played by the native plant systems in sequestering carbon dioxide in the soils. Michael F. Allen and Alan McHughen, "Solar Power in the Desert: Are the current large-scale solar developments really improving California's environment?" UC Riverside. The authors of this article (the article is attached as Exhibit I in the Appendix to this letter), led by Mr. Allen, who is one of the most informed and authoritative experts on carbon sequestration in the desert, say: "Unfortunately, many federal and state agencies, as well as several non-government organizations, whose goal is to protect habitats appear to have overlooked…existing literature addressing net carbon fluxes that would be affected by the proposed solar development."

The authors continue as follows: "Many of the areas that are proposed to be developed for the solar development include Microphyll woodlands. The dominant plants (legume trees) have deep roots capable of reaching groundwater (several meters). When desert plants grow, they absorb carbon dioxide (CO2). The carbon (C), as sugars, moves into roots and soil organisms. Carbon dioxide is respired back into the soil, part of which reacts with calcium (Ca) in the soil to form calcium carbonate. This is how our deserts sequester large amounts of C and thus function to reduce atmospheric CO2. The magnitude of the carbon storage process is still a crucial research question and remains unknown for our California deserts. However, values of

up to 100g/m2/y of C-fixation are reported for deserts in Baja and Nevada (Serrano-Ortiz et al. 2010). After vegetation is removed to make way for solar arrays, carbon dioxide will be left to return to the atmosphere that ordinarily would have been used to form soil organic matter buried up to several meters deep, or released by roots and soil micro as as soil CO2, which in turn, binds with soil Ca to form caliche."

The authors of said paper also say the following:

"Our deserts have large amounts of CO2 stored as caliche (CaCO3). The amount of C in caliche, when accounted globally, may be equal to the entire C as CO2 in the atmosphere. This caliche is formed from weathering of Ca in desert soils binding to carbonates that originate in large part from respiration of roots and soil organisms. Most of the caliche in our deserts was formed during the ice ages, when the vegetation was more dense and more productive. These deposits likely have been stable since (Schlesinger 1985). Being stable, though, means that inputs equal exports. Carbon in caliche may in fact be released, especially when vegetation and soils are disturbed. Mielnick et al. (2005) reported losses of up to 145g C/m2/y....The net C loss due to a loss of native desert vegetation could be as high as 50g C/m2/y plus weathering and dissolution of carbon dioxide from caliche up to 150g/m2/y for an areas of 7,000 acres (a common size for solar plants of 1,000MW). This translates to an annual loss of nearly 6,000 metric tons of C released by caliche, or retained in the atmosphere due to the loss of vegetation. This does not include the land disturbed by transmission corridors and maintenance roads through desert lands."

The study goes on to point out that the benefits of reduced GHG emissions from a largescale solar plant are finite, because the plant has a limited life, whereas the detriments caused by the destruction of soils entailed by the building and maintenance of the power plant and the related transmission facilities are extremely long-term. "Understanding the lifespans of the solar plants, compared with this long-term slow C balance is a critical need for determining if these solar developments represent a net long-term reduction in greenhouse gases."

Vol IV, Chapter 3 of the draft DRECP purports to address the net cumulative effect on greenhouse gas emissions after the energy facilities and associated transmission facilities are built out by 2040. The Chapter specifically states that one of the "metrics" used to assess the impact is "the loss of carbon uptake from vegetation removed as a result of ground disturbance under each alternative". This Chapter acknowledges that soils and plants on each development site provide a natural carbon sink, and that development of the land eliminates some but not all of this natural carbon sequestration. It asserts that "vegetation management and restoration practices" can "partially restore" the natural removal of CO2 from the atmosphere.

In Table IV.3-1, the DRECP purports to quantify the estimated loss of annual carbon uptake under the no-action alternative. The only studies it cites for these estimated figures are the "average U.S. forests" estimates from the EPA, and the "grasslands" estimates as reported by the California Climate Action Registry and California Emissions Estimator Model. Neither of these data bases takes note of the Allen/McHughen study. Further, it appears that both data bases address only the loss of absorption potential, and that neither takes account the emission of CO2 into the atmosphere resulting from destruction of caliche and other desert soils, which is a critical point in the Allen/McHughen analysis. Still further, the DRECP footnotes Table IV.3-1 in a way to suggest that desert biomes are *less* valuable CO2 sinks than "forests" or "grasslands", whereas the Allen/McHughen study strongly militates in favor of the opposite conclusion.

In Chapter IV.28, "Literature Cited", the only citation for Chapter IV.3, "meteorology and Climate Change", is the 2010 Staff Report for the California Air Resources Board on "Initial Statement of Reasons for Proposed Regulation for a California Renewable Electricity Standard", Appendix D. Table D1-3. Missing from this Appendix D is the Allen and McHughen study quoted from above, as well as any of the studies and papers relied on and cited by the Allen/McHughen study. Again, it does not appear that this resource relies on or even considers the information in the Allen/McHughen report tending to show that the disruption of desert soils necessitated by the construction of new generating and transmission facilities would add much more atmospheric CO2 than considered by the DRECP.

Under Section 15151 of the CEQA Guidelines, the REAT agencies are required to prepare an EIR with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. *Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts*. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure. <u>Town of Atherton v. California High-Speed Rail Authority</u>, supra, 228 Cal.App.4th 314 (2014). [emphasis added].

The Draft DRECP does not mention, and certainly does not summarize the conclusions of, the Allen/McHughen study, as it relates to the critical issue of carbon sequestration and the true net effect of the long term destruction of desert soils needed to build large-scale renewable energy facilities and associated transmission facilities.

12. <u>The Draft DRECP/EIS/R Fails to Meet the Requirements of a Program EIR</u> <u>Because it Does a Less, Rather than More, Exhaustive Consideration of Effects</u> <u>and Alternatives, and it It Defers, Rather than Considers at an early Stage,</u> <u>Broad Policy Alternatives and Program Wide Mitigation Measures.</u>

The draft DRECP and draft EIS/R purport to be a program EIR, which is "an EIR which may be prepared on a series of actions that can be characterized as one large project" and are related in specified ways. (Guidelines, § 15168, subd. (a).

It is vital that a Program EIR fully discharge its opportunity, and its responsibility, to do a more exhaustive consideration of effects and alternatives, and to consider broad policy alternatives at an early stage, precisely because agencies may limit future environmental review for later activities that are found to be 'within the scope' of the program EIR. (Latinos Unidos de Napa v. City of Napa (2013) 221 Cal.App.4th 192, 196).

Where an agency prepares a program EIR for a broad policy document such as a local general plan, Guidelines section 15168, subdivision (c)(2) allows agencies to limit future environmental review for later activities that are found to be "within the scope" of the program EIR. "In effect, after a sufficiently comprehensive and specific program EIR has been certified, CEQA allows much of the initial site-specific review to occur outside a formal CEQA process and beyond public view. CEQA does not require the Department to engage in a public process when it determines whether the impacts from a site-specific project were addressed and adequately mitigated in the program EIR. And if the Department finds the impacts were addressed, it need not prepare a new environmental document at all." <u>Center for Biological Diversity v. Dept. of Fish and Wildlife</u>, 2015DJAR 1668, 1674 (Feb. 11, 2015).

Once a program EIR is approved, a court generally cannot compel an agency to perform further environmental review for any *known* or *knowable* information about the project's impacts omitted from the EIR. (<u>Citizens Against Airport Pollution v. City of San Jose</u>, 227 Cal.App.4th at pp. 807-808; <u>Citizens for Responsible Equitable Environmental Development v. City of San Diego</u> (2011) 196 Cal.App.4th 515, 531-532; emphasis added.)

Using these principles as a point of departure, the DRECP clearly announces its intent that proposed projects within the Development Focus Areas in the DRECP are to receive streamlined treatment:

"The DRECP would streamline the permitting process in several ways, including: Greater certainty of permit requirements. Simplified mitigation requirements for projects sited within identified Development Focus Areas. A programmatic environmental analysis that may simplify project-specific environmental reviews. A quicker process for receiving

state and federal endangered species permits on private lands. A quicker process for receiving state endangered species permits on public lands. Priority processing and economic incentives for projects on BLM lands." Draft DRECP, Executive Summary, §2.3

With these words the REAT agencies have made unequivocally clear that any deficiencies in the DRECP's examination of effects, alternatives, or mitigation measures will be waived if they are not flushed out and dealt with now, at the program level.

Having taken this approach, the REAT agencies have a duty to do a thorough job of analyzing the impacts, alternatives and mitigation measures now, as to all subjects and criteria which are known or knowable. Unfortunately, however, the DRECP far too often falls back on the nostrum that it is just a planning tool, and that the real digging into effects and mitigation measures can happen at the project level. The excerpt quoted two paragraphs above makes it clear that in fact the REAT agencies intend – at least for any proposed utility scale renewable project in a DFA – to "streamline" the project right past any careful study of impacts and mitigation measures.

The DRECP's approach to Impacts (the subject of Vol IV of the DRECP) is repeatedly to put off all but the broadest, most self-evident statement of impacts, and to defer specific review to the specific project level. For example, it states, in its study of socioeconomic impacts: "This analysis cannot evaluate site-specific impacts associated with future individual renewable energy projects, as the locations and scale of individual projects is unknown. Instead, the analysis is presented at a broader, programmatic level, regarding the proposed land use plans of the DRECP and its alternatives." Vol IV, §23.1.1.2.

The Draft DRECP then goes on to make very broad, obvious and self-evident statements about the kinds of impacts that one may logically expect to see on socioeconomic and social justice values from constructing and de-commissioning, operations and maintenance, the Reserve Design, BLM land use plan decisions, Natural Community Conservation Plan and General Conservation Plan (generally, DRECP Vol IV, §23.2). Indeed, these statements are so broad and so elementary that they contribute virtually nothing to anyone's understanding of the expected impacts. The "socioeconomics and economic justice" chapter then goes on to do the same kind of extremely general and anodyne "analysis" of the impacts of the Plan's various Alternatives. The Chapter ends, and the average person has learned almost nothing that he or she did not already know about how the DRECP would impact socioeconomic and economic justice values in the DRECP area.

When one combines this abstention from analysis of the socioeconomic and economic justice impacts with the DRECP's stated intent to "streamline the permitting process", one sees

that the analysis of socioeconomic and economic justice impacts is very likely never going to get done.

For another example, one may examine Vol. IV of the Draft DRECP, which purports to evaluate the environmental impact of each of the Alternatives on various conservation resource values. Its study of the impact of the Preferred Alternative on Biological Resources appears in IV.7.3.2. It concludes, in section IV7.4.3.2.6, at pages IV.7-464 through 469, that there would be significant impact on all of the identified categories of Biological Resources - including a number of endangered or other special-status species – from the construction of utility-scale renewable energy projects on 177,000 acres of California desert, but that all of these impacts would be brought below the significance threshold by means of generally-described mitigation measures. It reaches this conclusion despite the fact that the DFA's under the Preferred Alternative overlap with critical habitat areas for a number of threatened or endangered species. It typically supports this conclusion with a sentence reading like this: "The adverse effects of the loss of [species or other biological resource named here] would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities." These CMAs, in turn, are described in only the most general and broad-brush manner. Missing is any discussion of how there could be any mitigation technique – even if one were very specifically delineated – to compensate for the loss of critical habitat for a species already found to be threatened or endangered. More importantly, the effect of this Section IV.7.4.3.2.6 is to justify the conclusion that for any specific project in a DFA, there need be no further examination of the actual effect of that project, even on threatened or endangered species, and even when the project would be sited in a critical habitat area. Even relatively small projects typically are found to have significant impacts (despite broad-brush conceptual mitigation ideas) when they are located in critical habitat areas for threatened or endangered species, but that level of evaluation threatens to go out the window under the DRECP's "programmatic" approach. To permit this "programmatic" approach to impacts analysis to short-circuit the environmental review process on issues so environmentally sensitive and important reflects a misunderstanding of the programmatic EIR concept.

"The core of an EIR is the mitigation and alternatives sections." <u>Watsonville Pilots Assn.</u> <u>v. City of Watsonville</u> (2010) 183 Cal.App.4th 1059, 1089.) Section 21002 requires agencies to adopt feasible mitigation measures to substantially lessen or avoid otherwise significant adverse environmental impacts. [¶] The CEQA guidelines state that to be legally adequate mitigation measures must be capable of: "(a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the

impacted environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action."

"For each significant effect, the EIR must identify specific mitigation measures; where several potential mitigation measures are available, each should be discussed separately, and the reasons for choosing one over the others should be stated. If the inclusion of a mitigation measure would itself create new significant effects, these too, must be discussed, though in less detail than required for those caused by the project itself." (Sacramento Old City Assn. v. City Council (1991) 229 Cal.App.3d 1011, 1027.)

"An EIR shall describe feasible measures which could minimize significant adverse impacts. (Guidelines, § 15126.4, subd. (a)(1)). An EIR may not defer the formulation of mitigation measures to a future time, but mitigation measures may specify performance standards which would mitigate the project's significant effects and may be accomplished in more than one specified way. (Id., subd. (a)(1)(B)).

"Impermissible deferral of mitigation measures occurs when an EIR puts off analysis or orders a report without either setting standards or demonstrating how the impact can be mitigated in the manner described in the EIR." (Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260, 280-281.)

Under other headnotes in this comment letter we home in on many other examples of this environmental prestidigitation, in which specific study of critical environmental issues is purportedly postponed to a later "tier", while in fact the DRECP states upfront that the later "tier" will be so "streamlined" that the study will likely never take place. It is simply not possible to list more than a sampling of such sleights of hand, for they permeate the DRECP's approach to impacts and mitigation. The point of this current headnote 12 is that the DRECP as a whole *never gets off the ground* as a program EIR, because it refrains from doing the careful and thorough job required of a program EIR as to matters known and knowable, nor does it "set[] standards" for mitigation measures at the project level.

As one very recent case points out, the law guards against the "kick the can down the road" approach to program EIR's; there is one chance for the public to get a good, detailed, accurate look at the environmental consequences of a program, and that is right now, during the draft DRECP and DEIR/S process. <u>Cleveland National Forest Foundation v. San Diego Assn. of Governments</u>, 231 Cal.App.4th 1056 (2014) (modified and rehearing denied, 2014 Cal.App. LEXIS 1150)

"Designating an EIR as a program EIR . . . does not by itself decrease the level of analysis otherwise required in the EIR. 'All EIR's must cover the same general content.

[Citations.] The level of specificity of an EIR is determined by the nature of the project and the "rule of reason" [citation], rather than any semantic label accorded to the EIR."" (Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency (2000) 82 Cal.App.4th 511, 533.) Consequently, in considering a challenge to a program EIR, 'it is unconstructive to ask whether the EIR provided "project-level" as opposed to "program-level" detail and analysis. Instead, we focus on whether the EIR provided "decision makers with sufficient analysis to intelligently consider the environmental consequences of [the] project."" <u>Citizens for a Sustainable Treasure Island v. City and County of San Francisco</u> (2014) 227 Cal.App.4th 1036, 1052.

13. <u>The Draft DRECP Provides Neither a Specific Cumulative Impacts Analysis,</u> <u>Nor a Way to Conduct a Supplemental Analysis Based Upon Later Actual</u> <u>Experience and Data.</u>

The Draft EIR/EIS has a cumulative impact analysis. As may be expected for such a purely programmatic plan, the analysis is purely hypothetical at this point. However, once the DRECP is put into effect, and projects actually start to be built, real world statistics of impacts will start to appear. The DRECP provides no mechanism for, and no clear method of funding, the comparison of actual impacts with hypothesized impacts. This supplemental cumulative impact analysis is a necessary part of the DRECP document, for otherwise the actual real-world experience will never by evaluated or measured.

To be clear, the supplemental analysis for real world experience must be distinguished from the Monitoring and Adaptive Management principles currently in the Plan. These Monitoring and Adaptive Management concerns are tiered to be project-specific; whereas the supplemental studies discussed under this heading must be undertaken against the larger background of migration corridors, the reserve design envelope and other programmatic, landscape-level issues.

14. <u>The Draft DRECP's Analysis of the Mechanism to fund Mitigation and</u> <u>Monitoring is Inadequate, Given the Size and Scope of the DRECP.</u>

At several different points in this letter we address specific subject areas where the Draft DRECP omits to provide any meaningful examination of how mitigation and monitoring measures are to be paid for. However, this omission is so pervasive throughout all of the DRECP that it merits a separate heading here.

The DRECP offers no detailed study of the mechanism for funding mitigation, monitoring, or conservation actions. Missing is any description of a permanent, direct, fixed, earmarked, durable and reliable funding mechanism for any of the planned conservation actions. Repeatedly the DRECP relies on mitigation, management and monitoring measures as the justification for finding "less than significant" impacts, yet just as repeatedly the DRECP refrains from spelling out how this management, mitigation or monitoring will be paid for. Without any direct, fixed or reliable sources of funding, the question remains unanswered as to how the federal and state agencies will live up to their commitments in this plan.

On one of the informational webinars sponsored by the REAT agencies during the public comment process, Scott Flint identified grants, tax credits and other State funds for various aspects of "grant assemblage", as a method of funding mitigation and monitoring. However, in the DRECP document these potential sources never get beyond the realm of the hypothetical.

What makes this void particularly critical is the fact that the DRECP leans very heavily on mitigation and monitoring as the key method of turning what it concedes to be very significant impacts into less than significant impacts. For example, its discussion of the impacts of the Preferred Alternative on biological resources of the Preferred Alternative, the DRECP concludes that every one of the listed categories of biological resources would be significantly impacted, but that every one of these significant impacts could be rendered less than significant through the application of mitigation techniques. Left unspecified is a clear and reliable method for mitigation of such impacts. This is discussed in greater detail herein under heading 15.

As another example, the DRECP does the same thing with its discussion of impacts of the Preferred Alternative on groundwater. That is, it states that impacts would be significant, but identifies a set of groundwater mitigation techniques supposedly rendering the impacts less than significant. These techniques include such things as monitoring water usage with automatic shutoffs when certain thresholds are hit, monitoring land subsidence, and so on. How are these monitoring and enforcement functions to be funded? The DRECP leaves this unclear. This is discussed in greater detail herein under headnote 10.

The extensive tables in the Draft EIS/EIR lack quantitative clarity of analysis in crucial areas when it comes to the practicalities of mitigation, management, monitoring and enforcement.

For example, Sections II.3.1.5 et seq. provide the beginnings of a structure of the Executive Policy Group and an Adaptive Management Team, but the discussion is very vague on

the all-important elements of funding. Advancing any new programs that lack clear and objectively verifiable funding requirements and funding resources raises both academic concerns and the likelihood of legal challenges.

Similarly, it is not enough to propose coordinating conservation efforts without also coordinating oversight of development, mitigation, monitoring and enforcement. The DRECP does the former but not so often does it do the latter with any real-world specificity. It lacks any detailed, clear and direct explanation of rank and tenure for the DRECP management structure. It offers no elaboration with respect to how to staff and pay for all positions, and it is missing a detailed Table of Organization (TOR) from each agency participating in the DRECP. Each office of the California Desert District BLM should be required to provide a "TOR", that is disclosed and approved in advance by the public at large.

The DRECP does not seriously address the questions of whether and from what sources the BLM will have the financial resources or agency staffing for implementation of the BLM's key roles of monitoring and mitigation and enforcement for any projects approved per DRECP, the millions of acres of SRMAs, ERMAs, CMAs, CPAs and Reserve Design areas, or the staffing to deal with streamlining of project approvals and reviews. Currently, all southern California offices of the BLM do not have enough staff to keep up with their current workload. For instance, our best information is that the Barstow office at full staff has 12-16 rangers, but in fact currently has only seven. It is also our understanding that at present three of the BLM California Desert District offices do not have a biologist on staff.

The BLM plays one of the largest roles of any agency in this large-magnitude endeavor; how can it provide the enforcement required to preserve conservation values per the Plan, over millions of acres and thousands of miles, if it is already short-funded as it is?

Similarly, as to the thousand-plus miles of new transmission lines proposed in the Plan area per Appendix K, the DRECP lacks any discussion of any funding for any of the monitoring, mitigation or enforcement required for these projects.

The DRECP lacks quantitative economic analysis and focus on local and regional costs and benefits of Renewable Energy generation, or policy strategies to improve local economic benefits. Under the Preferred Alternative, areas such as Lucerne Valley, Apple Valley, Western Antelope Valley and the Imperial Valley face significant economic injustice issues, and the ability of the DRECP agencies to detect or prevent the utility-scale ghettoization of these areas questionable. Where is the funding going to come from to mitigate these negative impacts? Who will patrol the thousands of miles of new transmission lines? Who will make sure that dust is not traveling into residents' homes and schools? How will residents be compensated for severe

reductions in property values and increased health care costs due to the negative impacts of renewable energy generation in close proximity to their homes?

Further, the DRECP is obligated to identify and analyze how resources will be sufficient to effectively achieve the streamlined permitting in DFA areas while at the same time assuring that proper conservation and mitigation measures are employed. The DRECP has not done this.

Ron Rempel, former assistant director of the California Department of Fish and Wildlife, said the following at the October 21st DRECP Public Comment Meeting in San Diego [the quote is included in the excerpts from the public comment transcript of this meeting, Ex. J in Appendix hereto]:

"One of the clear pieces the NCCP Act requires is funding for the long term management and monitoring of species. The plan does not appear to include funding that will take those management and monitoring into the long term. I think the assumption is that someday some plants will be taken out and be restored. But that is, I think, really open for question over the long term.

But in addition the costs associated with management and monitoring appear to be off by a factor or 20 or more. In other words, there isn't near enough money being put into the program in order to do the management and monitoring. And I'm sure there some folks here in San Diego that would be more than willing to sit down with Staff and go over the real costs of management and monitoring for an NCCP and the types of species we are talking about since we do know those cost today, and it's far greater than anybody anticipated.

I think the piece, also, with the long-term funding for management and monitoring is—I see that really as a cost shift to future--- to future residents, to future developers out in the desert. Because this program really is going to underestimate the required mitigation to fully offset impacts. We know out at Coso Geothermal, the mitigation that was put in there did not work for Mojave Ground Squirrels. There was not demonstratable increase to take care of the losses that occurred there, and I think that's going to be a situation throughout the Conservation Plan area."

Mr. Rempel in the above quote has put his finger on one of the biggest concerns raised by a programmatic EIR/EIS of this scale: that is, the uncertainty in knowing the true impact of the "program" on living things. The future needs to be protected against these uncertainties, and this takes money. For these reasons, the DRECP should call for a public committee of scientists who are field based and readily familiar with the above raised issues to scrutinize the long term Monitoring and Mitigation funding needs.

In the DRECP's treatment of "Cost and Funding" (found in Appendix I), the REAT agencies include a discussion of "Cost" but no real discussion of "Funding". Further, even the "Cost" discussion is abbreviated, and no effort is made to tie the estimated costs to the specific CMA's proposed by the DRECP to mitigate against serious environmental impacts.

As noted under heading 12 above, once a program EIR receives a ROD, there is very limited project-by-project analysis of actual effects. "New and substantial information" is one of the few things that can trigger a requirement to amend a programmatic EIR. But without a clear source of funding, aligned with a clear plan for subsequent re-evaluation of cumulative impacts, there would be no way to be aware of "new and substantial information". The DRECP has neither a clear source of funding nor a clear plan for subsequent re-evaluation of cumulative impacts. Thus the DRECP, as it currently reads, has built into iti a method of maintaining ignorance, with the perverse effect of making the DRECP impervious to later re-evaluation. Essentially the draft DRECP has created its own de facto guarantee that no supplemental EIR will be required, because the actual impacts are never measured. This is directly contrary to the letter and spirit of CEQA and NEPA.

15. <u>As to Biological Resources, the Draft DRECP Fails to Establish a Proper</u> <u>Baseline, Fails to Address Environmental Impacts, and Impermissibly Attempts</u> <u>to Defer the Fashioning of Viable CMA's.</u>

The "Biological Resources" portion of the DRECP's "cumulative effects" discussion (IV.25.3.7, at p. IV.25-50) starts out with a strong statement about the need to comply with laws calling for preservation of the desert's biological heritage: "[u]nder all alternatives, activities proposed within the Plan Area would be required to conform to federal, state, and local laws and regulations to protect biological resources, such as, but not limited to: Endangered Species Act, Clean Water Act, Clean Air Act, Migratory Bird Treaty Act, Eagle Act, California Endangered Species Act, California Fish and Game Code (1600 - 1616), Porter-Cologne Water Quality Act, Native Plant Protection Act, and local authorities and administering agencies." Nevertheless, one of the main aims of the DRECP is to incentivize development in DFAs that would destroy thousands of acres of habitat for endangered and threatened plant and animal species, and mortality of listed and sensitive animals and plants.

The DRECP does not deny this; it concedes that "cumulative" renewable energy, transmission and other development listed in Tables IV.25-1 through IV.25.4, as well as the development projected in county General Plans (summarized in section IV.25.2), would cause a significant loss of listed and sensitive plants and wildlife, as well as of habitats for them, habitat

linkages and wildlife movement corridors (IV.25-50 and 51). Further, the development fostered by the DRECP in the DFAs would "result in the degradation of vegetation through the creation of dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants (IV.25-54)" and "adverse impacts to Covered and Non-Covered Species (direct and indirect impacts to individuals and habitat), as described in Chapter.IV.7 (IV.25-55)."

And, according to Section IV.25-51, those serious cumulative impacts would be unmitigable on a project-by-project basis -- "through piecemeal efforts" -- because: (1) "projectby-project mitigation would not likely achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and would lack the inter-agency, coordinated management and monitoring of habitat lands for these species;" (2) the lack of a "comprehensive and integrated reserve design and Plan-wide implementation and supplemental mitigation in the form of bird and bat conservation plans would lead to cumulative impacts to natural communities, wildlife and plant species, and sensitive biological resources;" and (3) there is "a lack of enough available private land with habitat."

Having itself concluded that mitigation at the next, project-level tier is not feasible, the DRECP assumed the obligation to: (1) identify impacts with specificity (both in terms of specific regions and technologies) in conjunction with a thorough and comprehensive biological baseline study; and (2) develop a set of CMAs with very well-defined, program-level mitigation measures. But the DRECP does none of this; it fails to provide a baseline study and or a study assessing the true impacts of renewable energy development and transmission work on Covered and Non-Covered flora and fauna. And, in respect to the CMAs, it ventures a rather broad-brush outline of the aspirational goals it would like to see incorporated in future CMAs, an outline that is so vague that – as will be discussed below – mitigation would for all practical purposes continue to be formulated and monitored on a project-by-project basis.

In that regard, the DRECP proposes (IV.25-52) that mitigation of 20,000 MWs of new renewable energy projects be accomplished on a Plan-wide, programmatic basis "through implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities [i.e., the construction and operation of new energy projects and transmission lines]." According to the DRECP, these CMAs – this "overall DRECP conservation strategy" – would (IV.25-52) contribute "to the overall DRECP conservation strategy, conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program (MAMP)," and reduce the adverse effects on biological resources "to a less than significant impact for the action alternatives." The DRECP also states (IV.25 – 56) that the "CMAs would contribute to the overall DRECP conservation strategy, which includes

conservation within the Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program."¹¹

But, again, the DRECP is devoid of real guidance as to how mitigation would actually be conducted to reduce the impact of industrializing the desert to a "less than significant" level. The DRECP does not say exactly what a "Monitoring and Adaptive Management Program" would entail, who would be entrusted with creating the MAMPs and CMAs, when they would be prepared, what the approval process would be for them, how and whether they be funded or how many MAMPs and CMAs might be needed.

The DRECP does not, in the CMAs, in the MAMPs or in other referenced program documents, provide any practical guidance as to how exactly mitigation would be effected to reduce the impacts of 20,000 MWs of new development to a "less than significant" level. No plan is stated, no clear criteria are laid out and no standards are set, nor are any methods specified for measuring the effectiveness of any mitigation efforts. All the DRECP states in terms of the CMAs is that they would include (depending on the particular species) the siting of DFAs to "avoid the majority of habitat," "avoidance and setbacks from riparian, wetland, and dune habitat," "compensation to offset habitat loss," "habitat assessments and/or pre-construction surveys," "biological monitoring to ensure individuals are not directly affected by the operations," the siting of projects to avoid habitat impacts "to the maximum extent possible," a "bird and bat use and mortality monitoring program," and development of a "Bird and Bat Operational Strategy" that would apply during operation of renewable energy projects." [IV.25-55 and 56].

But this is nothing more than an anodyne statement of broad goals, ones so bland and common-sense in nature that anyone could make it, even someone totally unfamiliar with the desert and renewable energy issues. Who could argue with the irrefutable proposition that, in

¹¹ The DRECP acknowledges that CMAs were developed for BLM lands only, but it nevertheless presents an analysis that "assumes that all CMAs would be applied also to nonfederal lands [IV.6-32]." This appears to be wishful thinking, especially given that the DRECP does not require that such CMAs be prepared by any particular person or agency, nor does it specify the process for approving them or where the funds needed to pay for their preparation and monitoring would come from. In short, there is no assurance in the plan document that any CMAs will ever be created or that, if they are, they would properly address impacts on groundwater or their remediation; it should be expected that, if the task of preparing CMAs is to be left to developers, they would be quite resistant to preparing full-blown CMAs obligating them to undertaken costly mitigation measures.

constructing large energy plants, an effort should be made to avoid putting them in sensitive habitats, and that developers should refrain from destroying Covered Species and their habitats? In failing to say how any of this is to be accomplished, the CMAs provide no more guidance than would a cheerfully worded greeting card.

Other stated CMA goals, such as the above-quoted suggestion that compensation be provided "to offset habitat loss," are totally impractical. The DRECP does not specify where the compensation acreage would come from (wouldn't this in effect being "robbing Peter to pay Paul?"), what other species would be displaced in the process or who would pay for the compensation land.

Table IV.25-5 (IV.25-58 et seq.), which purports to address mitigation on a species-byspecies basis, provides no hard-edged mitigation plan. The table offers only useless truisms – such as, that "Plan-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts" (How would a "minimization CMA" differ from an "avoidance and minimization" CMA? Are there other sorts of CMAs?), curious statements such as: "project-specific mitigation would be implemented if needed" (notwithstanding that the DRECP provides no guidelines at all in that regard and purports to rely on a programmatic approach to mitigation), further bland, common-sense proclamations (such as: "CMAs would require detection and curtailment practices to avoid injury and take of a condor)," statements of amorphous conservation goals that are swallowed by broadly stated exceptions (such as: "CMAs would require avoidance of TCAs [Tortoise Conservation Areas], except for impacts associated with transmission or disturbed portions of CMAs"), and reiterations of the broad CMA goals quoted above.¹²

In short, the DRECP has not begun to assess biological impacts on a cumulative, programmatic level, nor has it provided anything resembling a definitive plan for achieving Planwide mitigation. Hence, even though the DRECP bills itself as a program EIR, it has not fulfilled the purposes earmarked for such EIRs, which are as follows: "(1) Provide an occasion

¹² Table IV.25-5 suggests (given that the geographical boundaries of the CMAs are not specified) that, in regions where there are more than one Covered Species, there could be a bewildering tangle of overlapping CMAs. The table also tries to make the point that the DRECP generally sets aside more of a particular species' habitat in its "reserve design" than it does for DFAs, but this ignores the fact that the Preferred Alternative would sacrifice to industrial-scale development thousands of acres of sensitive and irreplaceable habitat that is crucial to the survival of Covered Species protected by the above-referenced laws.

for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action, [para.] (2) Ensure consideration of cumulative impacts that might be slighted on a case-by-case analysis, [para.] (3) Avoid duplicative reconsideration of basic policy considerations, [para.] (4) Allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts, [and] [para.] (5) Allow reduction in paperwork." <u>Town of Atherton v. Cal. High-Speed Rail Authority</u>, <u>supra</u>, 228 Cal.App.4th 314, 343 (2014).

The REAT agencies most certainly have available to them now the means, the data and the ability to adopt the programmatic approach laid out in <u>Atherton</u>. That they must do so now is underscored by the stated intent, in the DRECP, to greatly limit future environmental review for later, specific renewable energy projects in the DFAs, all of which are supposed to "tier" from the so-called programmatic environmental analysis in the DRECP. In that regard, the Executive Summary (para. 2.3) states that: "[t]he DRECP would streamline the permitting process in several ways, including: Greater certainty of permit requirements. Simplified mitigation requirements for projects sited within identified Development Focus Areas. A programmatic environmental analysis that may simplify project-specific environmental reviews. A quicker process for receiving state and federal endangered species permits on private lands. A quicker process for receiving state endangered species permits on public lands. Priority processing and economic incentives for projects on BLM lands."¹³

¹³ The DRECP also states, in that same vein, that: (1) "[e]nvironmental review of individual future renewable energy and transmission projects in the Plan Area would tier from the DRECP PEIR/EIS, as appropriate," which "would require inclusion and adoption of a mitigation monitoring program ["MMRPs"] to ensure that mitigation measures identified in the PEIR/EIS and any subsequent environmental documents are implemented [VI-1 of Vol. VI ("Mitigation Monitoring and Reporting Plan")];" (2) under CEQA, as part of the approval of a Mitigated Negative Declaration, "the lead agency must adopt an MMCRP [a Mitigation Monitoring, Compliance, and Reporting Program], which is to be implemented during project execution . . . [m]itigation for adoption of the DRECP consist of imposing mitigation measures identified in the PEIR/EIS and any future mitigation measures on all projects implemented under the DRECP [VI-2];" and (3) MMCRPs are to include mitigation measures adopted by the lead agency (the identity of which would depend on the nature, size and location of a particular project), as well as measures proposed by the project proponent (VI-3).

There is an additional, very compelling reason that the DRECP must now bring into its analysis all available information relevant to impacts and mitigation. Once a program EIR is finally approved, a court generally cannot compel further environmental review for any known or knowable information about the project's impacts that have been omitted from the EIR. In other words, according to <u>May v. City of Milipitas</u>, 217 Cal.App.4th 1307, 1325-1326 (2013), agencies may limit future environmental review for later activities that are found to be within the scope of a program EIR, except to the extent that new information which was not known or could not have been known at the time of the program EIR was certified as complete becomes available.

The above-cited legal doctrines make it even more imperative that the REAT agencies now consider all "known or knowable" data, science, studies and other information bearing on the impacts that would arise from the development that the DRECP seeks to foster and bearing on the degree to which (and on the manner in which) those impacts can supposedly be mitigated to a "less than significant" level. There is undeniably an embarrassment of riches available to the REAT agencies when it comes to "known or knowable" data, information and off-the-shelf studies concerning the extent and characteristics of Covered Species (plant and animal), their habitats, wildlife corridors and movements, how various species are impacted by various types of development and the nature, and the extent and likely impacts of the renewable energy and transmission development that the DRECP seeks to incentivize in the DFAs.

The DRECP is legally prohibited from averting its eyes and pretending that – in assessing landscape-level impacts and mitigation – it is entitled to ignore this informational treasure trove and to claim nevertheless that it is a program EIR which curtails later, project-by-project environmental review. Were it otherwise, the desert's human and natural communities would be left facing the absolute worst of both worlds, where no real environmental analysis would be undertaken at any stage, either at landscape - or at project-level, with respect to the enormous impacts of the 20,000 MWs of new energy development (and transmission infrastructure construction) that the DRECP is seeking to usher into the DFAs.

While mitigation for particular projects is ostensibly placed under the supervision of a lead agency, or co-lead agencies, they have limited enforcement authority – "CEQA and NEPA do not provide Lead Agencies authority to take action, including ordering an immediate temporary suspension of activities, if the requirements of an MMRCP are not met" [VI-2]. Accordingly, lead agencies are accorded "considerable leeway in how they go about [monitoring compliance]," so much so that they can "rely on various levels of self-reporting and certification by the project proponent" [VI-2]. Given the lack of funding and staffing that would allow a lead agency to conduct meaningful overview, it can be assumed that self-reporting will be relied on primarily to monitor mitigation efforts.

Strikingly absent from the DRECP is any legal mechanism allowing REAT or other agencies to curtail, delay or modify renewable energy projects across the board in the DFAs, or even within a particular DFA, if the cumulative impacts of development cannot be mitigated below predetermined quantitative and/or qualitative -- "less than significant" – levels. Essentially, counties, cities and the BLM are left to rely on their authority to formulate and enforce conditions of project approvals insofar as they address mitigation on particular projects.

The DRECP appears to defer implementation of any real, boots-on-the ground mitigation measures and strategies to specific renewable energy projects, but such mitigation measures would not have any real teeth given the DRECP's position that deferral of mitigation to a later project tier is not feasible and given that the program-level CMAs consist of only vague, aspirational goals, rather than a set of clear standards. In any event, this reliance on so-called project-level mitigation measures represents a major flaw in the DRECP which, as noted above, has conceded that, in light of the magnitude of the renewable energy projects and transmission lines slated for the DFAs, their impacts would be too severe to be reduced to a "less than significant" level on a project-by-project basis.

In summary, the DRECP has failed to define a set of Plan-wide mitigation measures capable of reducing cumulative impacts on biological resources to a "less than significant" level. The habitat assessments, pre-construction surveys and biological monitoring, among other things, that the DRECP leaves to an indeterminate future -- after adoption of a final DRECP -- must be undertaken now, before its adoption. Otherwise, the DRECP would serve only as a standing "green light" for a plethora of utility-scale projects and as a free pass exempting developers in DFAs from having to undergo full environmental reviews of their individual projects, i.e., they would claim that particular projects have already been blessed by a "programmatic" environmental assessment that incorporates pre-approved mitigation measures.

16. <u>The Draft DRECP's Baseline and Environmental Setting Discussion, as Well as</u> <u>its Conservation Actions Discussion, are Inadequate.</u>

Guidelines section 15125, subdivision (a), provides: "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

To fulfill its information disclosure function, "an EIR must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified." (Smart Rail, supra, 57 Cal.4th at p. 447; see <u>County of Amador v.</u> <u>El Dorado County Water Agency</u> (1999) 76 Cal.App.4th 931, 953 [without an adequate baseline description, "analysis of impacts, mitigation measures and project alternatives becomes impossible"]; Guidelines, § 15125, subd. (a).) If the description of the environmental setting "is inaccurate, incomplete or misleading, the EIR does not comply with CEQA. [Citation.] Without accurate and complete information pertaining to the setting of the project and surrounding uses, it cannot be found that the [EIR] adequately investigated and discussed the environmental impacts of the development project." (<u>Clover Valley Foundation v. City of Rocklin</u> (2011) 197 Cal.App.4th 200, 219.)

The fact more precise information may be available during the next tier of environmental review does not excuse the DRECP agencies from providing what information they reasonably can now. (Guidelines, § 15144.) Moreover, if known impacts are not analyzed and addressed in a program EIR, they may potentially escape analysis in a later tier EIR. (§ 21166; <u>Citizens Against Air Pollution v. City of San Jose, supra, 227 Cal.App.4th at pp. 807-808; <u>Concerned Dublin Citizens v. City of Dublin, supra, 214 Cal.App.4th at p. 1320; <u>Citizens for Responsible Equitable Environmental Development v. City of San Diego, supra, 196 Cal.App.4th at pp. 531-532; <u>Fort Mojave Indian Tribe v. Department of Health Services, supra, 38 Cal.App.4th at p. 1605.)</u></u></u></u>

Without a clear understanding of the current status of resources at issue in the DRECP on both private and public lands, the agencies cannot make rational decisions and thus cannot comply with their obligation under the NCCP/HCP laws.

The DEIS/R does not provide adequate baseline information and description of the environmental setting in many areas, including the desert tortoise, golden eagles, rare plants, riparian resources, and sand transport corridors. Without the necessary baseline data, the public cannot make an informed decision.

In the study commissioned by the Alliance for Desert Preservation from its consultant Kristeen Penrod, Conservation Director SCWildlands (said study is Exhibit K hereto, included in the Appendix to this letter), Ms. Penrod identifies a number of shortcomings in the DRECP's baseline analysis as it relates to Covered Species and wildlife corridors, particularly in the Pinto-Lucerne and Eastern Slopes subarea. All of these comments of Ms. Penrod are incorporated herein by reference, as though set forth in full herein.

These defects in baseline analysis are compounded by the DRECP's short shrift approach to conservation actions, mitigation and monitoring. The DRECP does not answer these basic

questions: how is the baseline going to be established so that one may verify whether or not change occurs? What change has to occur in order for the CDFW to take the step of revoking the permits or removing species from the Covered Species List? How is monitoring to be managed and funded? The DRECP assumes that a way will be found to answer these questions, but it does not identify what that way is, or analyze whether it will really work.

Another defect in the DRECP's baseline analysis is that it does not clearly identify existing public and private conservation needs. In fact it appears to propose – without acknowledging that it is doing so -- that, as to some species, existing conservation needs will be sacrificed in order to expedite construction of renewable energy facilities. This would constitute a substantial erosion of the baseline as to that species. Since it is not acknowledged, the DRECP has no way to analyze the additional conservation actions needed to deal with the impairment of the species.

For example, in all of the DRECP's Alternatives, the Desert Tortoise Research Natural Area, a long-term conservation reserve assembled through successful public and private cooperation, is partially proposed for development. This proposal directly conflicts with recognized scholarship on the desert tortoise, which shows that desert tortoise populations continue to decline throughout the DRECP area. The reservation of 2 million acres for new development clearly would have a negative impact on the tortoise. The DRECP does not address this, because it does not acknowledge its proposal to sacrifice existing tortoise conservation area to begin with.

The DRECP proceeds from the basic assumption that DFA lands are already poor in conservation features, and thus easily sacrificed without further jeopardizing conservation values. However, this assumption remains unexamined, and frequently it appears to be incorrect. For example, the DRECP proposes DFA's in the West Mojave, while it identifies as Conservation Planning Areas (CPAs) certain areas east of California City, south of Edwards Air Force Base, and south of Palmdale. Again using the tortoise as an example, there is no analysis showing that desert tortoises are more likely to be found in the proposed CPAs than in the DFA's. Thus the purchase of the identified lands for treatment as CPAs may do nothing to help the tortoise, which meanwhile will have last valuable habitat in the DFA's.

Another example is the DRECP's approach toward DWMAs and critical habitat. Each of the DRECP's proposed alternative would allow solar facilities to be developed in DWMAs and critical habitat. However, the DRECP offers no data and no analysis to show that various special status species can survive the taking away of critical habitat.
Similar defects pop up in the context of what consists of reasonable "takes" of various species. How many reasonable "takes" are permitted, if one does not know the baseline for these species? In other words, where are the existing populations of these species now, and what amount of "takes" is too many? Where are they located? There will need to be one or more biological opinions for the DRECP before it is implemented, in which USFWS will need to determine take limits for threatened and endangered species, including desert tortoise. What are the baseline data that will allow USFWS to identify an actual take limit associated with the DRECP? For example, how many tortoises occur in the DFAs proposed under Alternative 1 versus the Preferred Alternative?

Another example of short-changed baseline work relates to the Migratory Bird Treaty Act (MBTA). The DRECP mentions the MBTA only in the narrowest of terms. In choosing to consider only on its "Covered Species", the DRECP has disregards the many species covered under the MBTA. There is a MOU between the USFWS and the BLM regarding the MBTA; what are the ramifications of this MOU for the DRECP baseline? The DRECP does not say.

Yet another shortcoming in the DRECP's approach to baseline and conservation action analysis is its reducing these subjects to gross acreage figures, without a more specific analysis. The DRECP presents DFAs, Conservation Planning Areas, Study Area Lands, and so on in terms of acreage; missing is any discussion of habitat quality or any indication that the covered species are even present.

Acreage is not a good measure of habitat quality; some habitats have relatively dense populations of a special status species, while in others there are none. Yet this planning exercise treats each acre as if it was equal to every other acre. Having made each acre equal to every other acre, the DRECP has taken away the ability of the CDFW to keep track of what actions on which acreage will contribute to conservation, as opposed to additional population loss. For example, a study might identify the number of tortoises displaced by a project, but no baseline exists to quantify the number of tortoises conserved as a result of that project.

17. <u>The DRECP's Treatment of What it Calls "Undesignated Lands" Creates, But</u> <u>Does not Answer, Large Questions About the Deleterious Effect on the</u> <u>Environment of Such a Designation.</u>

The authors of this letter respectfully incorporate herein, and refer the REAT agencies to, the comments from Kristeen Penrod, Conservation Director, SC Wildlands, relating to the potentially significantly destructive results of the DRECP's treatment of "Undesignated Lands". Ms. Penrod's report is Exhibit K, in the Appendix hereto. By way of very abbreviated summary,

and not by way of substitution for the reading of Ms. Penrod's report, the following points may be made:

In the Preferred Alternative there are 1,323,000 acres of Undesignated lands (appearing to mean BLM Unallocated Land), 709,000 acres of which are within BLM LUPA (Table II.3-42). These Undesignated lands overlap several areas of high conservation value, including but not limited to habitat for Covered Species, "Reserve Drivers" (e.g., bighorn sheep mountain habitat, bighorn sheep intermountain habitat, desert tortoise intact habitat and fragmented habitat in the Desert Tortoise TCA Habitat Linkages), and numerous areas of the Desert Linkage Network. Further, while much of the Mojave River itself is designated as Conservation Planning Areas in the Preferred Alternative, Undesignated lands or DFAs are located in the uplands along most of the Mojave River.

What is the significance of these "Undesignated Lands"? One of the bullets under II.3.2.3.4.2 "Conservation and Management Actions", reads: "In non-designated lands (i.e. lands not covered by the specific CMAs below), make lands available for disposal through exchange or land sale".

It appears that Undesignated lands are synonymous with BLM Unallocated and "nondesignated lands". This would mean that over 1.3 million acres of existing public land administered by the BLM will be available for "disposal". However, there is no mention of Undesignated, BLM Unallocated, or Non-designated lands in Vol. III.13 "BLM Lands and Realty - Land Use Authorizations and Land Tenure" or Vol. III.7 "Biological Resources". A map that clearly depicts ALL Undesignated lands and how they overlap with FAAs, SAAs, and DRECP Variance Lands should be included.

Vol IV.7-281 mentions Undesignated Areas as follows: "Approximately 471,000 acres were not designated as Reserve Design Lands under the Preferred Alternative that were identified in the conceptual reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them." But what about the other 852,000 acres of Undesignated lands mentioned in Table II.3-1? Where is the impact analysis regarding these lands?

This concept of Undesignated Lands appears to overlap with, and may be synonymous with the concept of public lands proposed for withdrawal. In Vol II.3.2.1.1, II.345, the DRECP states: "Public lands in DFAs would be proposed for withdrawal, in accordance with regulation, subject to valid existing rights, from settlement, location, or entry under the general land laws".

Does this mean that implementation of the DRECP Preferred Alternative would immediately result in the available transfer of all public lands within the 2,000,000 acres within

the DFAs into private land ownership, available for development of renewable energy facilities and other uses? If these public lands are going to be collectively withdrawn and made available to the private sector, how is the DRECP going to ensure they are not developed for purposes other than renewable energy development?¹⁴

Further, there is no analysis in the Draft DRECP regarding whether transfer of these public lands into private hands is the "best use of public lands." At first blush, the concept of withdrawal to private hands is antithetical to the best use of public lands, because many hundreds of thousands of acres of public lands would suddenly be removed from federal management action jurisdiction, to the detriment of the species to be protected.

18. <u>The Draft DRECP fails to address the effect of SRMAs and ERMAs on</u> <u>biological resources.</u>

The DRECP proposes to designate millions of acres as Special Recreation Management Areas and Extensive Recreation Management Areas. This raises the fairly obvious conclusion that there would be a significant increase in recreational use in these SRMAs and ERMAs. Yet the DRECP does nothing to address how to pay for an increase in law enforcement to govern the resulting increased vehicle use, nor does it address the effect on biological resources if, for lack of funding, there is no increase in enforcement.

Thus the DRECP wholly fails to study the environmental impacts of these new SRMAs and ERMAs, which apparently would include certain areas now treated as protected habitats. How will Covered Species be affected by increased recreational use in dedicated conservation areas? The DRECP fails to assess how designating something as an "Extensive" recreation area

¹⁴ The DRECP's approach to environmental impacts on biological resources refrains from any attempt to quantify, even by number of acres, and certainly not by species or populations of species, or covered species, the losses due to development on public lands within DFAs and nondesignated areas that would be disposed of under the DRECP. See, for example, Vol IV.7232, IV.7.3.2.1.1, Impact BR4. What makes this particularly inadequate as an environmental document is that the DRECP clearly states that the Preferred Alternative will have significant negative impacts on all biological resource categories. Vexingly, the document then, as to each category of biological resource, concludes that mitigation measures will render insignificant each of the negative impacts, yet these mitigation measures are equally vague and non-quantified.

is likely to change how the public perceives the area and how recreational uses, including destructive uses, may increase.

Also missing is any sense of the magnitude of change to recreational uses (and concomitant effects on conservation values) from the new proposed SRMAs and ERMAs. The discussion of the Preferred Alternative in Volume II devotes 42 pages describing National Conservation Lands (pages II.3319 through 361), and only one page describing SRMAs and ERMAs. Do increased ERMAs mean more designated open areas? Will there be more vehicle travel, even if it is required to be on existing roads, in species conservation areas in SRMAs? As is, we cannot answer any of these questions with the information provided in the Draft EIR/EIS' Preferred Alternative.

Furthermore, the DRECP does not seem to provide any current baseline for OHV impacts in areas proposed as SRMAs and ERMAs. Thus, the DRECP does not enable one to determine if there would be an increase in these impacts in response to these new designations, or the magnitude of this increase. Certainly there cannot be, and there is not, any analysis of the threshold at which these impacts are considered unacceptable and require remediation.

19. <u>The DRECP Does not do a Proper Consideration of the Environmental Impacts</u> of the Transmission Element.

A. The Draft DRECP Fails to Analyze the Impacts of Constructing Transmission Facilities.

The transmission needed to connect 20,000 MW of new utility-size renewable energy projects will included over 1,000 miles of transmission lines, hundreds of miles of collecting lines, delivery lines, 19 sub stations and super collector sub stations. See Flynn Resources report, attached hereto as Ex. L in the Appendix hereto.

In DRECP Appendix "L", table 4-2, the document lists Acreage of Impacts per Ecoregion for Each Alternative, reflecting a range of 29,944 acres to 35,574 acres of impacts. However, the document stops there. No impacts are analyzed. Nowhere else in the document is the Impacts on the Environment or Baseline information provided regarding Transmission or Appendix K.

The DRECP is required to disclose and analyze the impacts on the environment of the needed transmission facilities, given the fact that at least 30,000 acres will be impacted, as set forth in the Appendix K.

Pursuant to the CDCA Plan 5-6, "Management Principals", resolution of conflicts in the California Desert Plan area require innovative management approaches. There cannot be any such innovative management approaches without first conducting a detailed analysis of impacts of the transmission facilities to Covered Species, Air Quality and the overall ecological systems and linkages in the desert.

The fact that the DRECP has not attempted exact specification of location of transmission lines does not excuse its failure to examine the impacts of over 1,000 miles of disturbance of soils on any of the Covered Species. The approximate corridors are known, within a couple of miles.

That this is so is borne out by the fact that the RETI design has changed only slightly in 7 years. The DRECP states in Appendix K, Table 4-2 (page 28) that "the TTG did not conduct a comprehensive siting evaluation, so the transmission lines shown on Figures 1 through 7 should be considered as conceptual only and these figures only show new lines. While the acreage was adjusted in response to the revised Alternatives, the lines would follow the same general corridors as identified in the December 2012 report". However, the first version of this TTG Transmission report was originally introduced as part of RETI in 2008. In the last 7 years only minor modifications and adjustments have been incorporated. During the same period of time the same TTG individuals(or their companies) who are acknowledged on iii of this Appendix "K" have entitled, processed, designed, estimated and constructed at least four other extensive transmission projects. These include Sunrise Power link, Tehachapi Renewable Transmission project. Most of these are partially or completely within the DRECP plan area.

Looking at the CDCA requirements in the context of CEQA and NEPA review, it is clear that the EIR/S will need to analyze how the proposed locations and amendments would avoid or lessen those transmission impacts. Even in 1980 the Congress was concerned about the impacts of Transmission on the environment. The CDCA Plan (CDCA93) includes an Energy Production and Utility Corridors Element which focuses on utility corridors primarily. Even in 1980 the CDCA plan contemplated that the expansion of the CDCA Corridors (CDCA 94) may be brought forward into the Plan after successfully completing the Plan Amendment process. A contingent corridor, however, will not become a planning corridor unless the identified project has been successfully proposed through the complete State and Federal Regulatory and environmental review process.

The principals expressed in the Decision Criteria are also applicable to the DRECP, including minimizing the number of separate rights of way, providing alternatives for

consideration in the EIS/R, and avoiding sensitive resources where possible (CDCA93). The Landscape Levels have not been considered in Appendix K.

B. The DRECP Fails to Consider the Economic Impacts of the Transmission Facilities needed to bring DFA-Located Renewable Energy to the Grid.

The DRECP chooses to plan for 20,000 MW of utility-scale RE projects in the California desert; it chooses not to consider any alternative method of generating, transmitting, delivering, conserving and consuming renewable energy. One of the many pernicious results of this failure of analysis is the fact that the DRECP takes as a given the need for the construction of hundreds of miles of new transmission facilities needed to get utility-size projects' output to the grid, with little consideration of the economic impacts of having to construct these new transmission facilities.

20,000 MW in the any of the DRECP's alternative DFAs would require more than 1,000 miles of new, expensive transmission lines and substations, both inside and outside of the DRECP plan area. The initial capital cost of the proposed 500 kv lines alone, as shown on Appendix K (alternative 1) of the DRECP, would amount to ten to twenty-two billion dollars, according to an analysis undertaken for the Alliance for Desert Preservation by Flynn Resource Consultants, Inc. (Ex. L hereto). Even this estimate is too low, because it does not include the cost of the new 220, 230, 34.5 and 66 kv lines shown in Appendix K, nor does it include the cost of constructing the proposed 19 new electrical substations or of obtaining any required rights of way. Factoring in a rate of return, once the ten to twenty-two billion dollars in capital costs is passed on to the ratepayers, it will balloon to between thirty to sixty-six billion dollars.

The Flynn estimate, while partial, does make it clear that concentrating the development of 20,000 megawatts of new renewable energy projects here in the desert would be incredibly expensive, just from the standpoint of the cost of the requisite new transmission facilities.

Stringent CAISO "deliverability" requirements have driven billions of dollars of transmission infrastructure expenditure (Since 2007 an estimated \$8 billion in large-scale deliverability-driven transmission projects have been approved, permitted and/or are under construction). This infrastructure investment has been devoted primarily to accessing the full capacity of renewable generation. This has happened without an assessment of the economic or environmental costs.

The DRECP would accelerate by a factor many times over this build out of transmission infrastructure.

Reliable data is available. As noted above, the TTG Transmission Report referenced in Appendix K has been in place since 2008, with minor modifications and adjustments along the way. During this time the same four IOU's, representatives from the CEC, CAISO, and the CPUC and two consulting companies who are acknowledged on iii of Appendix "K", or their representatives, have entitled, processed, designed, estimated and constructed at least four other extensive transmission projects. Most of these are partially or completely within the DRECP plan area. The cost experience of these four projects provides an important touchstone for estimating the costs of transmission necessitated by each of the Alternatives in the DRECP. Indeed, Flynn and Associates provided The Alliance for Desert Preservation with a budget estimate for the 500kv portion of the needed transmission within a few weeks of engagement.

The DRECP must include at least two other overarching analyses in the economic analysis. The first is to study the line losses affecting long-distance transmission. By some estimates, the line loss could be between 16-20%. The second is to analyze the costs to protect the vulnerability of the grid system to terrorism and acts of God.

To perform its proper function as a programmatic EIR/S, the DRECP must analyze build out details, relying on past budgets and pro forma estimated costs.

An omission of this magnitude renders the DRECP unhelpful at best, and quite possibly seriously misleading. Consider this analogy: If the Navy drew up a master plan to build a new fleet of carriers, and chose to place the ship-building facilities in Nebraska, one would naturally expect an intelligent discussion of why a facility so far inland was preferable to one at a deep water ocean port; this discussion would include, among other things, a study of the added cost of delivering the finished ships to their distant destination. If the plan lacked any such analysis, it would be dismissed out of hand. Yet this is what the DRECP has done. This is a flaw which must be remedied.

C. The DRECP Fails as a Programmatic EIR, and in its Study of Cumulative Impacts, as to Transmission.

The DRECP as a Programmatic EIS/R has potential advantages, one of which is to undertake a more exhaustive consideration of effects and alternatives than would be practical in an individual action. However, these advantages are not taken advantage of, with transmission being a prime example. Instead, a genuine analysis of cumulative impacts is dispensed with, and papered over with the "programmatic" label.

"Programmatic" is not an excuse to neglect the thorough study of relevant, available data pertaining to important environmental impacts.

Part of the cumulative impacts analysis for transmission is compelled by CDCA Decision Criteria (CDCA 93), which requires minimizing the number of separate rights of way, providing alternatives for consideration in the EIS/R, and avoiding sensitive resources where possible. This kind of study isn't even feasible at the subsequent tier level; but it is custom-made for a programmatic analysis.

The data are there; the DRECP simply elected for some reason not to get into it. In places, the DRECP does do detailed estimates of impacts, analyzed by Ecoregion, down to tens of acres of generators in a few Ecoregions. These are very site specific and the locational variances cannot significantly change. Further, the Development Focus areas have for the most part been vetted out and reasonable certainty is very clearly developed in Tables 3-1 through 3-6.

Moreover, in Appendix K, section 3.2 on page 15, "Standardized Grid Components and expected Acreage Impacts", there is a reasonable certainty regarding how wide the corresponding corridors need to be to the various Ecoregions, with estimates corresponding voltages. Since the DRECP has fairly specifically estimated the locations, and the anticipated or estimated energy generated, and the approximate voltages desired, the DRECP is required to analyze this data in a study of cumulative transmission impacts.

Chapter 8 of the *2014 IEPR Update* was dedicated to "Integrating Environmental Information in Renewable Energy planning Processes." The CEC staff has worked with the CPUC to develop an environmental scoring metric that was used in the 2013 LTPP proceeding. Further, the CEC has played a key role in providing environmental scoring input into the CPUC's RPS Calculator. For example, The CPUC RPS Calculator included a methodology that was used to generate an environmentally-preferred RPS portfolio (with 100% weight on environmental scoring). Further, we understand that the CPUC Energy Division staff plans on updating the environmental scoring is essentially ignored by the DRECP in its treatment of transmission impacts. If the Draft DRECP in its current form were to achieve an ROD, then all of the data and expertise from the CPUC and CEC relating to the environmental effects of new transmission projects will be lost.

In appendix K, Page IV, Note to Readers, the DRECP acknowledges that the report is based upon professional judgment of experienced transmission planners representing major utilities across the state, as well as the TTG and the three most important State agencies. i.e. the California Energy Commission, California Independent System Operator, and the California Public Utilities Commission, and two large environmental consulting companies. The failure of

the DRECP to take advantage of this consortium of expertise, after spending in excess of \$30 million dollars on consultants, and the decision not to analyze the Cumulative Impacts, leaves a void in this DEIS/R.

D. The Assumptions underlying the Transmission Element are Outmoded, Leaving the Analysis – to the Extent there is any Analysis of Impacts – Fatally Flawed.

All of the DRECP assumptions contemplate a centralized grid. This model is becoming increasingly anachronistic. Third generations of building materials are coming to market now which in the next few years that will render the even the most current PV solar roof panels obsolete. These materials provide greater efficiency, while furthering the trend towards utilizing the energy where it is generated.

The market is rapidly moving to localized or DG because it is more efficient, easier, cleaner and cheaper.

Even the investor-owned utilities are pursuing new, much more localized technologies, because the economic advantages are so evident. However, the IOU's are still very much tied to the old, grid-dependent model, which offers something close to a guaranteed return, at an extremely advantageous rate, for every dollar invested in still more new transmission facilities. Thus, in Appendix K, Page 3, "Assumptions", the first paragraph explains how the TTG report assumes that the build out indicated in the 2020 California Transmission Planning Group (CTPG) case would be a reasonable proxy for the availability of existing transmission capacity in 2040. In other words, the DRECP regards the TTG Transmission Plan to be so front-loaded that the build-out by 2020 will be more than enough to handle all additional load for the twenty following years. This goes against all of the planning principals embodied in the CPUC. What if the technology changes and DG and rooftop solar render the transmission grid a minor role in the energy nexus? We have already paid for and guaranteed the IOU's their return for at least 30 years. All this, on the backs of the California ratepayers when they chose newer more efficient technology. Please remember two things: (1) this is a very large amount of money -- in the tens of billions of dollars over the next 25 years, and (2) energy demand is flat in California over the last 40 years. All this being said, we would like to have the TTG report and transmission analyzed by a third party independent from the Utility companies and the CAISO.

E. The Draft DRECP is Planning for, and thereby Enabling, an Over-Supply of Transmission Capacity:

The DRECP is supposed to be a planning document. However, with respect to transmission the DRECP can easily become a policy document, when it comes to making decisions about construction of new transmission facilities. If the DRECP studies for an aggressively high amount of utility scale renewable energy in the California desert – which it does – then it acts as a virtual mandate for the construction of all of the transmission needed to get the energy to the grid.

The following is an excerpt from Bay Area Municipal Transmission Group (BAMx) written comment by Dr. Pushkar Wagle of Flynn Resources, Inc., filed in CEC, Docket number 15-IEPR-01: "While the recent and projected unprecedented increase in transmission costs is only one of many issues driving up electric rates in California, it is seemingly growing at a rate faster than any other sector. We need to accomplish the State's renewable goals while minimizing the adverse impact on the natural environment and at minimum cost to customers. For example, billions of dollars of customer money has been spent, and are planned to be spent, in building transmission infrastructure to access not the energy, but the full capacity of renewable generation, while the state is long in this system capacity. In other words, billions of dollars are being spent to deliver a product that is already over supplied. We hope this subject will get significant attention in the 2015 IEPR. We believe the CEC and the California Public Utility Commission (CPUC) should be responsible in determining this aspect of how to get our future capacity needs in the State. In the recent past, the Participating Transmission Owners (PTO), renewable developers, and the CAISO have, in essence decided to build transmission to obtain system capacity from renewables. This is now occurring as the CAISO declares that transmission is needed as "Policy- Driven" projects under their FERC approved Tariff."

These critical comments (included in Exhibit M in the Appendix hereto) are entirely correct. They apply directly to the DRECP, which can easily become the most powerful policydriver of all for the construction of new transmission facilities. This cannot take place without the DRECP first conducting an analysis of the impacts of all of this new transmission on the environment, and doing a comparison with Alternatives which create much less demand for large, expensive, and ecology-damaging transmission systems.

F. The DRECP Must Include an Analysis of Visual Impacts of the TTG report transmission design.

The proposed TTG findings included in Appendix K are for the most part a fixed design, with the exact locations varying a mile or two. These paths in some areas are not in keeping with the Visual Impact mandates of the CDCA (CDCA 94), the BLM's VRM Guidance, CEC regulations, or the County of San Bernardino General Plan¹⁵. Those areas include the Northern Slope of the San Bernardino Mountains, Cady Mountains, Rodman Mountains, and the Fry Mountains. All of these are directly adjacent to or within the Feinstein National Monument, or Sand to Snow, Bill.

The DRECP's Visual Impact Analysis for these areas does not adequately take into account the mandates and guidelines cited herein in the immediately preceding paragraph. <u>See</u> Volume III.20.2 "Visual Resources", for the Pinto Lucerne and Eastern Slopes Ecoregion.

The DRECP must conduct an analysis of the Scenic Quality, Visual Sensitivity Levels and the Visual Distance Zones, in the context of creating a transmission corridor in these areas. The local community and the County need to be consulted on this analysis.

G. Energy Efficiency and Transmission Supply and Demand

The transmission assumptions in the DRECP are based upon a model that is already outdated and will become increasingly outmoded in the future. Per capita and overall demand is flat for energy in California over the past four decades. These facts reflect patterns of efficiency and conservation (as well as increased reliance on DG) which the DRECP's assumptions simply refuse to acknowledge.

In the Executive Summary and Appendix F, the DRECP postulates what the goals or target should be if the 2012 CEC demand forecast were used, but the DRECP also states that the REAT agencies chose to be conservative and add 20% in assumed increased demand, for good measure. This 20% is significant when it comes to transmission. As noted above, the TTG report

¹⁵ The County of San Bernardino has specific regulations (1) protecting scenic vistas by minimizing invasive ridgeline development (2) requiring that future land development practices be compatible with existing topography and scenic vistas (3) protecting natural vegetation ; (4) protecting the scenic and open space qualities of cinder cones and lava flows; (5) maintaining and enhancing the visual character of scenic routes in the County; and (6) requiring along the development along scenic corridors demonstrate, through visual analysis, that proposed improvements are compatible with present scenic qualities.

is already heavily front loaded, creating a large discrepancy between what is reasonably needed and what is called out in the TTG report. The assumed 20% "cushion" further widens the discrepancy.

The DRECP identifies as a prime "purpose and need" the 33% renewable energy goal of AB 32 and Executive Order S-14-08. However, there are other policies, equally as important as (and consistent with) AB32, including, by way of example, the CPUC proceeding creating the CEESP (see discussion under heading 8 of this letter). The Transmission element of the DRECP totally ignores these policies and goals, resulting in assumptions for a transmission buildout which is out of step with the state's policies.

H. Garamendi Principles and the TTG report

Where transmission is determined to be necessary, the DRECP must follow the "Garamendi Principles". The Garamendi Principles are findings to Senate Bill (SB) 2431 (Stats. 1988, ch. 1457), legislation regarding the role of transmission in California's future development. In main part, the Garamendi Principles read:

"(b) The Legislature further finds and declares that the construction of new high-voltage transmission lines within new rights-of-way may impose financial hardships and adverse environmental impacts on the state and its residents, so that it is in the interests of the state, through existing licensing processes, to accomplish all of the following:

- "A. Encourage the use of existing rights-of-way by upgrading existing transmission facilities where technically and economically justifiable.
- "B. When construction of new transmission lines is required, encourage expansion of existing rights-of-way, when technically and economically feasible.
- "C. Provide for the creation of new rights-of-way when justified by environmental, technical, or economic reasons, as determined by the appropriate licensing agency.
- "D. Where there is a need to construct additional transmission, seek agreement among all interested utilities on the efficient use of that capacity."

The DRECP has not adhered to the Garamendi Principles in the San Bernardino County area from Coolwater Substation south (and east) to a new super collector substation and then on to Lugo Substation. There are other paths or routes that could follow existing CDCA and Federal Transmission Corridors. These are along to Hwy 40, Hwy 15 Corridor, Hwy 58 corridor and

Hwy 395 corridor. All of these are already established energy transmission corridors. The only reason to locate the transmission in the proposed approximate route is to collect and deliver transmission to the Desert View Substation (or a similar super collector substation) and then on to Lugo Substation. The other existing routes mentioned above do this in a more environmentally sensitive manner and significantly less objectionable manner.

Unfortunately, the DRECP does not do a real analysis of its assumed and proposed sitings of new transmission facilities, and none of its discussion is seen through the lens of the Garamendi Principles. This failure even to consider a critical California policy, embodied in a statute, leaves a void in the transmission element of the DRECP

I. The County of San Bernardino and Transmission in the DRECP

In its proposed Position Paper, the County of San Bernardino states that Development Focus areas need to be removed from the communities of Newberry Springs, Stoddard Valley, Johnson Valley, Lucerne Valley and Apple Valley. We assume that the final comments to the DRECP from the County will reiterate this position. Since these proposed DFA's under the Preferred Alternative are primarily on private land, the County's position is critical. In view of the County's position, it makes no sense to plan for well over 100 miles of 500kv and 100 miles of 230kv transmission lines south of Coolwater Substation. The DRECP must be modified to reflect this reality. There are alternative routes less objectionable, more logical and significantly less impactful on the environment.

20. <u>The Draft DRECP's Treatment of Soils is Deficient Because it Fails to Employ</u> <u>the Best Data, Including Data From the Natural Resources Conservation</u> <u>Service, and it Does Inadequate Analysis of the Data.</u>

The Draft DRECP's treatment of soils at both the baseline and impacts level is deficient. It appears that a good deal of data compiled by the Natural Resources Conservation Service was not used. It further appears that much of the data was not determined from "boots on the ground" surveys, but rather from extrapolations and guesswork.

In Figure R1.4-1, Figure R1.4-10, Figure R1.4-7, "Soil Textures within Ecoregion Subarea", the reader is led to assume that this data represents actual soil textures in the various Ecoregion Subareas. In addition, the location of the soil texture is not specified. Is this the surface soil texture, the dominant soil texture in a certain depth, or something different? If it were representing surface texture then what will the data be used for? Surface textures usually

are often only 1 to 3 inches thick before changing to some other texture. Typically at least three inches of soil will be removed during any grading process, rendering the information practically useless for predicting erosion, or PM10/dust/health issues.

The acres of soils with "moderate to high potential" for wind or water erosion is listed in Table IV.4-3. The source of the data is not indicated, leaving the reader in the dark as to whether the data is realistic.

Table R2.2-2, showing "Potential Acres of Dust Emission Sources by Technology", leaves open the basic question of what is being considered as the definition of "dust". The PM-10 or PM-2.5 dust fractions both have different implications on human health. Also, there is "dust" that falls outside of these size fractions which may be generated by wind of sufficient velocity and duration which may be a visibility hazard but may only occur infrequently. There is no quantification of what is meant by "dust" or whether this nuisance/hazard will only occur during construction or will be a result of the construction activities and become a permanent issue. Will this dust be generated all at once or is the estimate for an unspecified period of time? How is this estimate derived? Soils data are needed to generate these numbers, and it must be made clear as to whether the soil data used refers to the surface layer or the subsurface layer apply.

Table R2.4-2, purports to show "Acreage of Erosive Soils". The source of the data used to generate this table is unclear. It would require significant effort to attempt to create a map based on erosivity for such a large scale.

The DRECP does essentially no study on the effects of dust on Valley Fever; no such discussion occurs under the soils rubric, nor does it appear under air quality, public health, socioeconomics or environmental justice. The DRECP's focus on PM10 and PM2.5 dust concentrates almost entirely on vehicle emissions, at the expense of any consideration of the effect on these particulates from grading for utility-scale energy projects.

21. <u>The DFA's in the Preferred Alternative for Apple Valley, Lucerne Valley and</u> <u>Johnson Valley Directly Conflict With Conservation Values for Covered</u> <u>Species' and other Sensitive Species' Migration Corridors and Critical</u> <u>Habitats.</u>

The proposed DFA's in the Preferred Alternative for the Pinto Lucerne Valley and Eastern Slopes subarea show a serious disregard for well-established data and studies relating to the preferred and critical habitats and connectivity corridors for the 37 Covered Species, as well

as other focal species. This data and these studies are referenced, and in fact embodied in, the report prepared by Kristeen Penrod for ADP, a copy of which is Ex. K in the Appendix to this Letter. Said report performs an in-depth and detailed examination of the draft DRECP's approach to DFA's and the reserve design envelope, particularly as they relate to the Preferred Alternative for Pinto Lucerne Valley and the Eastern Slopes subarea.

We will not further lengthen this letter by reiterating the data, inferences and conclusions drawn by Ms. Penrod in her report. Rather, we respectfully incorporate herein by reference her report in its entirety, and we draw particular attention to her conclusions, which compel, *based on biological habitat and connectivity issues alone*, that the Apple Valley, Lucerne Valley and Johnson Valley DFA's in the Preferred Alternative radically threaten the health and survival of many special status species.

Ms. Penrod's conclusions are a result strictly of her study of wildlife connectivity corridors and preferred and critical habitats. Nothing stated in or implied from this letter should be deemed to stand for the proposition that the proposed DFA's for Pinto Lucerne and the Eastern Slopes under the Preferred Alternative are acceptable after they are "whittled down". As a threshold matter, it is bad science and bad planning to streamline utility-scale renewable energy projects close to critical wildlife corridors and habitats. Moreover, the proposed DFA's for these areas are infected by numerous failures of analysis, many of which have been described in considerable specificity in the instant letter. By way of example only, the DRECP's approach to both the impacts and the mitigation measures as to groundwater, health concerns, socioeconomic factors, and fugitive dust is extremely deficient, as it relates to these proposed DFA's. For these and numerous other reasons, the proposed DFA's for Pinto Lucerne and the Eastern Slopes under the Preferred Alternative are not suitable for utility-scale development, even after they would be diminished to reflect the findings in Ms. Penrod's report.¹⁶

22. <u>The Draft DRECP Should Call for Making the Entire Juniper Flats Recreation</u> <u>Area National Conservation Lands.</u>

At headnote 4 of this letter, we point out some of the deficiencies in the DRECP's proposed approach to conservation measures on BLM land, which depend heavily on

¹⁶ Nor do we imply that the proposed DFA's for other subareas of the DRECP area do not create equivalent issues with respect to habitat and connectivity; the authors of this letter simply did not have the time or resources to commission a study from Ms. Penrod totally covering the entire DRECP area.

conservation designations (primarily NLCS or ACEC) which the draft DRECP proposes to make conceptually loose, in a way contrary to the BLM's mandate. In short, if an area of BLM land possesses important conservation values, then these values are immutable, and do not somehow come into our out of existence according to the other uses to which the land might be put.

The authors of this letter respectfully submit that one particular piece of BLM land, consisting of about 100,000 acres, and commonly called Juniper Flats Recreation Area, should be accorded Conservation Land Status, regardless of the Alternative considered.

The discussion in the Penrod report as to the Pinto Lucerne Valley and Eastern Slopes subarea gives an immediate picture of why Conservation Land status for this area is important. In short, Juniper Flats runs east-west across the migration corridors of a number of threatened and endangered species. A glance at map 5(b) in the Penrod report shows this, and it further shows that Juniper Flats sits as a small protuberance on the northern boundary of the much larger San Bernardino National Forest. As numerous special status species make their way between the desert floor and the National Forest and back again, they pass through this narrow BLM zone, located in a vital transitional biome between the ridgeline and the desert.

At least twenty-three community groups and environmental organizations have signed off on a letter to Jim Kenna, BLM Director for the State of California, requesting Conservation Land status for Juniper Flats. See Exhibit N in the Appendix to this letter; we incorporate by reference the entirety of said letter.¹⁷ For further information and background, please see the related photographs comprising Exhibit O in the Appendix.

23. <u>The DRECP should Include a Phasing Feature.</u>

The DRECP's failure to consider any aspect of phasing stems from an assumption at the core of the DRECP, which is that the "consequences of underestimating the need for renewable energy in the Plan Area may be greater than the consequences of overestimating the need." (ES, p.16)

The reverse is in fact true: it is relatively easy to revise the estimate upward, but it is virtually impossible to revise it downward to recover precious natural areas intact that have already been destroyed by development.

¹⁷ Wildlands Conservancy and California Native Plant Society signed off on the letter after its transmittal.

Similarly, the DRECP says:

"If energy and economic variables, governmental requirements, and other factors translate into a need for more or less development, the DRECP will still achieve its intended purposes of reducing project impacts and conserving sensitive species and habitats." (ES, p.16)

The DRECP proffers no analysis or factual basis for this assertion, nor does it, as it must, compare this alternative with one that features a phased approach.

It appears to be a basic breach of elementary planning principles for the DRECP to have adopted, at its core, a single, fixed energy-horizon "20,000 MW in the DRECP area" without considering the flexibility that can be achieved by working with sub-horizons in a phased fashion.

The DRECP advocates immediate establishment of 2 million acres of DFA's, even as it acknowledges that it may be planning for more utility scale renewable energy than will ever be needed. The DRECP has overlooked phasing in the DFA's over time. This will minimize negative consequences from the immediate adoption of 2 million acres in DFA's, while continuing properly to address the DRECP's "purpose and need."

The DRECP leaves to the CMAs the entire task of providing minimization and mitigation for the projects that are actually developed.

As part of this phasing element, the DRECP can and should provide for release of lands designated as DFAs once statewide energy goals are met (that is, keyed to the state's actual experience in the coming years, not the Plan's targets, which are likely to be shown to be increasingly incorrect, leaving two million acres with the DFA designation despite the fact that there is not demand for more utility-scale renewable energy projects).

Phasing will slow down development, providing direct short term minimization. The long term minimization will come from time itself. Phasing is not at odds with the stated purpose and need of the plan, because phasing still allows for the full designation of DFAs over the life of the plan.

Thus, by way of example, an initial phase to handle 5,000 megawatts of utility-scale energy development could be used. The DFA's for this 5 thousand MWs would be brownfields and, if necessary, other areas highly disturbed, remote from populations, and adjacent to existing transmission lines.

Then if it turns out that more market-driven utility-scale energy development is needed

based on market conditions, the DFAs can then be enlarged based on the new (market-driven) estimates of needed energy development; that is, the new estimate should be based on the actual, then-current market for utility-scale energy development.

In this phased fashion, only the least sensitive areas of the desert need to be sacrificed, and the DFAs are not made unnecessarily large so as to cause unnecessary sacrifice to the more precious areas of the desert. So both objectives are satisfied: the plan will allow for as much market-driven energy development as needed, and yet will also preserve the more precious areas from unnecessary impacts. This can be done much more effectively through phasing than through the current Plan's single, fixed energy-horizon.

24. Conclusion.

We appreciate the REAT agencies' serious consideration of the points raised in this letter, as well as the points made by other concerned citizens during the public comment process. We remain dedicated to a collaborative and constructive approach to energy planning which gives full regard to the importance of conserving our precious and irreplaceable desert environment.

Very Truly Yours,

ALLIANCE FOR DESERT
PRESERVATIONMOJAVE COMMUNITIES CONSERVATION
COLLABORATIVERichard Ravana, PresidentLorrie L. Steely, FounderMORONGO BASIN CONSERVATION
ASSOCIATIONDESERT PROTECTIVE COUNCILSarah KenningtonTerry Weiner

BASIN AND RANGE WATCH

Kevin Emmerich

Appendix Included with Emailed and Mailed Versions of this Letter

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Coccidioidomycosis Among Solar Power Farm Construction Workers — California, 2011–2013

Jason Wilken, PhD Career Epidemiology Field Officer

Centers for Disease Control and Prevention California Department of Public Health jason.wilken@cdph.ca.gov

Presented to Imperial Valley Environmental Justice Task Force July 17, 2014



Disclosure

I have nothing to disclose

Presentation Objectives

To understand risk factors for developing coccidioidomycosis

- To recognize modifiable work and hygiene practices that place employees at greater risk of occupational infection
- To understand the importance of prompt and proper reporting as required by California Code of Regulations (Title 17) and California Labor Code

Coccidioidomycosis ("Valley Fever")

Infection from inhaled Coccidioides

- *C. immitis* Primarily California
- C. posadasii—Arizona, Texas, and New Mexico

Incubation period: 1-3 weeks

Symptoms

- >60% asymptomatic or mild ILI
- Sometimes severe pulmonary illness or pneumonia
- Rarely, disseminated disease including meningitis
- Long-term symptoms possible (esp. fatigue)



4

Biology of Coccidioidomycosis





http://www.cdc.gov/fungal/pdf/coccidiomycosis-lifecycle508c.pdf

Distribution of Coccidioides (the "endemic" area)

- Southwestern U.S.
 - California (Central Valley), Arizona, Nevada, New Mexico, Texas
- Mexico, parts of Central and South America
- Thrives in areas with hot summers, mild winters, desert climate





May 6, 2014 in Health, Region

Fungus causing valley fever found in Washington soil

A fungus that can cause a potentially fatal illness called valley fever has been found for the first time in the soil of Washington, officials at Washington State University said Monday.

When the fungus, which is normally found in the semi-arid soils of the Southwest, becomes airborne, it can lead to valley fever. It releases tiny spores that get inhaled and lodged in the lungs of humans and certain animals, especially dogs.

In the most severe form of the illness, the spores escape from the lungs and cycle through the bloodstream, setting up infections that destroy bones, cause skin abscesses and inflame the brain. The federal Centers for Disease Control estimated it kills 160 people annually.

Three unrelated cases – in Benton, Franklin and Walla Walla counties – were diagnosed in Eastern Washington in 2010-11. Soil samples taken recently from the same vicinity tested positive for the fungus, proving it can survive in the area, scientists said.

"Do I think it just showed up and made three people sick? No. I think it has probably been in the soil for some time," said Dr. Tom Chiller of the CDC in Atlanta, which collaborated with the state in its investigation.

CDPH Coccidioidomycosis Yearly Summary Report, 2012



Coccidioidomycosis Rates in Imperial County

	<u># of new cases/100,000 persons</u>	
Year	Imperial County	California
2008	4.4	6.3
2009	4.9	6.4
2010	2.1	11.5
2011	2.3	13.8
2012	4.5	10.8

http://www.cdph.ca.gov/healthinfo/discond/Pages/Coccidioidomycosis.aspx 9

Coccidioidomycosis Disease Spectrum

60% of persons infected do not have symptoms

40% will develop symptoms, often flu-like

- Cough, fever, fatigue, muscle/joint pain, night sweats, headache, rash
- Can last for weeks to months

Coccidioidomycosis Disease Spectrum





Disseminated or extrapulmonary infection in <5%
Infection can spread to meninges, bone, skin, joints, or other organs

Risk Factors for Severe or Disseminated Coccidioidomycosis

□ Age (≥60 years old)

Certain racial and ethnic groups

African Americans, Filipinos, Hispanics

Pregnancy, especially in 2nd or 3rd trimester

Diabetes

Other immunosuppression

- Cancer, HIV, organ transplant
- Steroid, chemotherapy, other medications

Occupational Exposure to *Coccidioides*

- Workers engaged in soildisrupting activities in endemic areas are at risk of coccidioidomycosis
 - Construction workers, including roadbuilding and excavation crews
 - Archaeologists
 - Geologists
 - Wildland firefighters
 - Military personnel
 - Workers in mining, quarrying, gas and oil extraction job
 - Agricultural workers





 Occupational Coccidioidomycosis Outbreaks
3 out of 30 museum paleontology workers in Maricopa, California, 1966.

17 out of 39 archeological students in Red Bluff, California, 1973.

10 out of 18 archeology workers at Dinosaur National Monument, Utah, 2001.

CDPH Investigations of Coccidioidomycosis Outbreaks

2007: Camp Roberts, San Luis Obispo County

- Construction workers replacing an underground pipe
- 10 of 12 developed coccidioidomycosis (2 with disseminated disease), 83% attack rate
- Sandy soil; wetting ineffective
- No respiratory protection used

2008: Near McKittrick, Kern County

- Construction workers widening a box culvert
- Nine of 10 developed coccidioidomycosis (2 with disseminated disease), 90% attack rate
- No respiratory protection used
CDPH Investigations of Coccidioidomycosis Outbreaks

2012: Near Simi Valley, Ventura County

- Filming of outdoor scenes over three days for a television episode
- 5 confirmed cases, 5 suspect cases among cast and crew;
 2 hospitalizations
- Some soil-disruptive work preceded filming
- Interviewed employees reported very dusty conditions

Only 2 of 10 patients reported performing any soil-disruptive work

 Disease Reporting in California
 Each county health department monitors diseases among county residents

Some diseases (including coccidioidomycosis) must be reported to CDPH by counties

If a medical provider suspects a patient has a workrelated disease, the provider must complete a "Doctor's First Report of Occupational Injury or Illness"

If a medical provider suspects an outbreak of any disease, they must contact county or state health department

Coccidioidomycosis at Two Solar Farms

<u>Dec 2012</u>	
Reportable disease surveillance, San Luis Obispo County Public Health Department	3
<u>Feb 2013</u>	
Doctor's First Reports of Occupational Injury or Illness	3
Search of CDPH coccidiodiomycosis reports for terms associated with solar farms	6

No.

Medical Record Review — A Large Outbreak?

rking on Highway 58 about 60 miles east of Bakersfield, near Santa Marguerita. It was very sty. Quite remarkably, he tells me that 35 of his coworkers ended up with valley fever.

> evaluate and recommend a course of treatment for his pulmonary cocci. Patient also told me that among his coworker, there have been 30 cases reported of pulmonary cocci. Most of his colleagues fortunately did not need any treatment and had symptoms resolved within a week; however, for him, his sumptoms have not resolved and he has been progressively weaker and sicker for

the past 11 days. Pt states that he has been working construction in California for the past 9 months in a desert-like environment. Pt states that many of his co-workers were being worked up for Valley days. Pt states that he worker experiencing cough, congestion and SOB for the past 11

Site Visit, March 5-6, 2013

Joint public health investigation

- Division of Occupational Safety and Health (Cal/OSHA)
- CDPH Occupational Health Branch and Infectious Disease Branch
- San Luis Obispo County Public Health Department

Site tour

Employee, contractor, and subcontractor interviews

Identification of employer medical providers

21

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Photo: San Luis Obispo County Planning Department

Photo: San Luis Obispo County Planning Department

Cases by Method of Initial Detection (N = 43)

Before site visit:	
Doctor's First Reports	3
San Luis Obispo County	3
Search of CDPH database	6
After site visit:	
Review of Division of Workers' Compensation administrative database	3
Employer health & safety records	18
Employee rosters (incomplete)	5
Medical provider contacted CDPH	2
Identified during interviews	2
Identified by union representative	1

Employer and Workforce Chara	acteristics
Employers, no.	120
Employees Total, no.	?
With known addresses, no. Residing outside of county Residing outside of California	3,638 60% 21%
With known first/last workday, no.	1,192

Incidence Rate for Two Employers at Solar Farm A

Cases among these employees, no.	32
Employees with known first and last day worked, no.	1,192
Total person-years among these employees, no.	630
Incident rate, employee (cases/100,000 person-years)	5,049
Incident rate, San Luis Obispo County residents (cases/100,000 persons, 2012)	39

Incidence rate ratio (95% CI)

132 (82,211)

Incidence Rate for Two Employers at Solar Farm A

Cases among these employees, no.	32
Employees with known first and last day worked, no.	1,192
Total person-years among these employees, no.	630
Incident rate, employee (cases/100,000 person-years)	5,049
Incident rate, San Luis Obispo County residents (cases/100,000 persons, 2012)	39

Incidence rate ratio (95% CI)

132 (82, 211)

Patient Characteristics (N = 43)

Age, years	
Median	47
Range	21–63
Male, no. (%)	40 (93)
Race/ethnicity (N = 40), no. (%)	
White	24 (63)
Hispanic	10 (25)
Other or multiracial	6 (13)

Smoking, current/ever (N = 40), no.(%) 24 (60)

Patient Outcomes (N = 43)

Hospitalized, no. (%)	9 (21)
Days, range (median)	2–17 (3)
Visited ED, no. (%)	17 (40)
Missed work (N = 40), no. (%)	34 (85)
Days, range (median)	1–547 (22)
Total, person-years	9.1
Time to symptoms from first work day (N = 42) Days (range, median)	10–638 (108)

Patient Occupations (N = 42)



Electrician/lineman/wireman	13 (31)
Equipment Operator	11 (26)
Laborer	6 (14)
Carpenter/ironworker/	5 (12)
miliwright/mechanic	
Manager/superintendent	4 (10)
Other	3 (7)



Photo: San Luis Obispo County Planning Department

P9F31

CDPH Recommendations to Employers

Minimize dust generation

- Stabilize disturbed soil areas and cover excavated soil
- Increase watering frequency and water truck capacity
- Establish criteria for stopping work when dust is excessive

Reduce employee exposure

- Provide HEPA-filtered, air conditioned, enclosed cabs
- Provide NIOSH-approved respiratory protection for all employees who work outside

Ensure prompt reporting of cases to appropriate agencies

Patients by Residence (N = 43)



Patients by Residence (N = 43)



Patients by Residence (N = 43)



Physician's Notes — San Luis Obispo County Outbreak, 2012-2013

rking on Highway 58 about 60 miles east of Bakersfield, near Santa Marguerita. It was very sty. Quite remarkably, he tells me that 35 of his coworkers ended up with valley fever.

> evaluate and recommend a course of treatment for his pulmonary cocci. Patient also told me that among his coworker, there have been 30 cases reported of pulmonary cocci. Most of his colleagues fortunately did not need any treatment and had symptoms resolved within a week; however, for him, his symptoms have not resolved and he has been progressively weaker and sicker for

the past 11 days. Pt states that he has been working construction in California for the past 9 months in a desert-like environment. Pt states that many of his co-workers were being worked up for Valley days. Pt states that he worker experiencing cough, congestion and SOB for the past 11

Occupational Coccidioidomycosis Summary

- Occupational exposure by inhalation of Coccidioides spores
 - <u>However</u>, worker does not have to actively engage in soil disruptive work.
 - E.g., electricians, millwrights, nurses, actors, camera operators
- Cases are reported by physicians to health jurisdiction of patient's residence
 - County of residence is not necessarily where the infection occurred

Providers should report suspected outbreaks of any work-associated infectious disease (to CDPH, local health department, and Cal/OSHA)

Reporting is required by state regulations

Preventing Work-Related Coccidioidomycosis (Valley Fever)

Valley Fever is an illness that usually affects the lungs. It is caused by the fungus Coccidioides immitis that lives in soil in many parts of California. When soil containing the fungus is disturbed by digging, vehicles, or by the wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get Valley Fever.

s Valley Fever a serious concern in California? YES!

Often people can be infected and not have any symptoms. In some cases, however, a serious illness can develop which can cause a previously healthy individual to miss work, have long-lasting and disabling health problems, or even result in death.

This fact sheet describes actions employers can take to prevent workers from getting Valley Fever and to respond appropriately if an employee does become ill.



In October 2007, a construction crew excavated a trench for a new water pipe. Within three weeks, 10 of 12 crew members developed coccidioidomycosis (Valley Fever), an illness with pneumonia and flu-like symptoms. Seven of the 10 had abnomal chest x-rays, four had rashes, and one had an infection that had spread beyond his lungs and affected his skin. Over the next few months, the 10 ill crew members missed at least 1660 hours of work and two workers were on disability for at least five months.



HAZARD EVALUATION SYSTEM & INFORMATION SERVICE California Department of Public Health, Occupational Health Branch 850 Marina Bay Parkway, Building P, 3rd Floor, Rithmond, CA 94804 510-620-5757 • www.cdph.ca.gov/programs/ohb

California Department of Public Health • California Department of Industrial Relations

http://www.cdph.ca.gov/programs/hesis/documents/coccifact.pdf

Additional Resources

 CDPH coccidioidomycosis webpages: <u>http://www.cdph.ca.gov/healthinfo/discond/Pages/Coccidioidomy</u> <u>cosis.aspx</u>

http://www.cdph.ca.gov/programs/ohb/pages/cocci.aspx

 CDC coccidioidomycosis webpage: http://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.ht ml

Acknowledgments

- Employees
- Unions
- California Department of Public Health
 - Occupational Health Branch
 - Infectious Disease Branch
- **Department of Industrial Relations**
 - Division of Occupational Safety and Health
 - Division of Workers
 Compensation

- San Luis Obispo County
 - Department of Public Health
 - Department of Planning
 - Air Pollution Control District
- Centers for Disease Control and Prevention
 - EIS Field Assignments Branch
 - Mycotics Disease Branch
 - Public Health Informatics Fellowship Program
 - National Institute of Occupational Safety and Health



The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the California Department of Public Health.

Exhibit 72

Via Email docket@energy.ca.gov

California Energy Commission Dockets Office, MS-4 Docket No. 09-RENEW EO-01 1516 Ninth Street Sacramento, CA 95814-5512

From: Edie Harmon, desertharmon@gmail.com

Re: DRECP NEPA/CEQA Comments on the Draft DRECP document and related Environmental Impact Report/Statement

- 1. I have been a resident of Imperial County since 1977, living in a 160 acre subdivision within the Yuha Desert ACEC and adjacent to the Jacumba Mountains Wilderness. Over many decades I have witnessed the adverse consequences of various development proposals and projects, including construction of transmission lines and industrial scale wind projects on public lands managed by BLM and conversion of agricultural lands to industrial scale solar projects to export energy to more affluent areas on the coast.
- 2. I can see both transmission lines and wind turbines that are part of the Ocotillo Wind Energy Facility (OWEF) from where I live. The OWEF is located overlying an overdrafted US EPA designated Sole Source Aquifer, apparently the only one so identified in the DRECP. Given what I have seen and learned as a groundwater user in an area surrounded by previously protected BLM land use designations, I have very serious concerns about the potential for adverse impacts on groundwater resources everywhere in the desert if more unnecessary industrial scale renewable energy projects are permitted and/or constructed to export energy. I receive anguished, almost daily communications from residents who are struggling to survive in their homes that are surrounded by wind turbines as close as ½ mile away.
- 3. I am also concerned about the socioeconomic and environmental justice impacts of converting productive agricultural lands to unnecessary industrial uses related to renewable energy. Many studies have documented the lack of need for more industrial scale renewable energy projects or the need or wisdom of converting productive agricultural lands to industrial scale solar projects. Even a conversation with an EPA staff member recently concurred that there is no need for any more remote industrial scale solar projects to export energy for use in San Diego.
- 4. I have also signed on as a supporter of the DRECP Alternatives letter submitted by Basin and Range Watch.
- 5. I will try not to cover issues which I believe are being addressed by other commenters and organizations. These comments include discussions of errors, omissions, procedural violations related to cited, but missing Figures, and the need to add additional information about well documented public health impacts related to construction of renewable energy projects in southern California, and errors of fact and mapping related to groundwater.
- 6. These concerns, together with those of others, support the request for a revised or supplemental EIR/EIS with a new alternative. Furthermore, it is requested that there be additional time for review of technical documents which will include text providing the reviewer with the identity of figures or tables and where such supporting information is to be found. Bouncing from one place in the document and then going on a wild goose chase to locate missing figures or tables to understand issues ends up being a profound and discouraging waste of time.

MAPS

- 7. The maps or Figures are difficult to read, both on the DVD for the DRECP, even when enlarged, and in the DRECP printed copy reviewed at the BLM EL Centro Field Office. Part of the difficulty is that there is very little difference in the colors, especially the reds-pinks-lavender. There should be consistency in the interpretation of colors from map to map. For example, DOD lands should be the same color on all maps, and tribal lands should be the same color on all maps, but they are not in the printed copies for Fig 1.0-1 and Figs. 1.0-2,3, and 4. Figures 1.0-2, 1.0-3, 1,0-4 all show white boxes within the Chocolate Mountains DOD lands, but no such boxes appear in Figure 1.0-1. There is nothing in the legends for the three figures to identify these boxes for land ownership? Why? (My undergraduate degree is in geography and I spent years making maps, so difficult to understand maps are a concern.)
- 8. Mapping error for Chocolate Mountains land ownership is repeated in Fig II.3-1 Interagency Preferred alternative. As of 10-25-2014, he Conservation Biology Institute is identified as the author of the map at <u>DRECP.org</u>, however, this group needs to more carefully study the BLM maps and make corrections accordingly. The other lands DRECP map for the preferred alternative states that Mike Howard, Senior Biologist at Dudek in Encinitas Ca is the contact person as of 10-25-2014. Given the proximity of Encinitas Dudek office to the BLM Field Office area and that Howard was present at the DRECP meeting in El Centro, there is no reason why the DRECP maps should not match the land ownership on the wall map in the BLM El Centro Field Office. Indeed, apparently all Preferred Alternative maps that depict the Chocolate Mountains as military lands contain the same land ownership error on the DRECP.org Gateway as of October 25, 2014! Why??? Didn't anyone from BLM check the final maps?
- 9. Checking the BLM CDCA Plan maps for 1980, there was no map that depicted any private property located withing the Chocolate Mountain Gunnery Range. Therefore, every Figure in the DRECP which depicts white boxes within the Chocolate Mt Gunnery Range is incorrect and inconsistent with the large map on the walll at the BLM El Centro Field office.

Missing DRECP Appendices

10. Appendix R1 is "Data Supporting Volume III". Please note that Appendices R1.01, R1.06, R1.07, R1.09, R1.07, R1.13, R1.17, and R1.20 do not appear to be on the DRECP CD provided by BLM, even though they are identified in the DRECP Table of Contents. Of critical importance is the fact that there is no Appendix R1-12 for agricultural land and production even though Figures from the missing Appendix are referenced at the following DRECP pages:

Fig. R1.12-1 at III.12-19 (is Fig.R1.12-1 same as Fig. III.12-1?); Fig. 1.12.2 at III.12-25 etc for all Ecoregion Subareas where no figures are available.

11. When I asked BLM's Nicolle Gaddis to see if she could find the Appendix R1-12 at the DRECP website, it was not there. When she called the BLM state office, she was told that the appendix is not available and would not be available until after the comment deadline! This is a serious procedural violation of NEPA and CEQA to withhold from the public the Figures that should be a part of the DRECP and were references in the text of Section III.12 for Agriculture. See end of these comments for additional information.

Re ES

12. LLPA map (ES p 10 0f 60) includes only a very small portion of the eastern part of the the Jacumba Mts Wilderness in SW Imperial County along the Mexican Border. The Jacumba

Mountains Wilderness was among the wildernesses so designated by the 1994 California Desert Protection Act and approved by Congress, thereby qualifying as a LLPA. Why does the DRECP boundary include only a small portion of the Jacumba Mts Wilderness, but does include a substantial amount of Wilderness land in Eastern San Diego County? I asked Carrie Simmons of BLM EC, but there needs to be an explanation that is more direct and easier to understand prior to the presentation of the 1st DRECP map.

Air Quality, Public Health, Valley Fever, Socioeconomics, and Environmental Justice discussions are missing important information about health impacts related to dust and the problems associated with the use of chemical dust suppressants for dust control mitigation in arid areas

- 13. DRECP fails to provide any meaningful discussion of the adverse public health impacts related to construction of industrial scale renewable energy projects in locations subject to blowing dust and sand when soils are disturbed. Neither Valley fever nor coccidioidomycosis were found in Sec. III.2 Air Quality, Sec. IV.2 Air Quality, IV.23 Socioeconomics and Environmental Justice, or DRECP Baseline Existing Conditions Sec. III.22 Public Health and Safety.
- 14. DRECP makes no mention of valley fever in its Chapter on Baseline discussion of Existing conditions for Public Health, Safety, and Services in Section III.22. However in its discussion of Public Health and Safety Impacts of the various Alternatives, the DRECP in Sec. IV.22.1.2.6 states that: "This chapter discloses to the public that large energy projects can have issues such as occupational and public health hazards (e.g., <u>Valley Fever</u> and Legionnaires' disease); accidents, sabotage, and terrorism; and natural events ." (DRECP v. IV. 22-4, emphasis added.)
- 15. Why would DRECP Volume IV discuss issues not disclosed in Volume III? When looking though the reference sections, I was unable to find any references to the materials and recommendations for worker and public safety related to valley fever published by the California Department of Public Health (CDPH) or CDC. However, the CDPH has numerous brochures and has been doing research on valley fever associated with an industrial solar project in San Luis Obispo County, CA. Omission of information from CDPH and listing CDPH as a reference is a serious omission of extremely important public health information!
- 16. Later, DRECP Vol. IV states that: "The construction of access roads or meteorological stations, as well as geotechnical study borings, could disturb soils containing Valley Fever fungal spores. Dust control measures and worker safety precautions could help limit exposure." (DRECP IV.22-5) Then it notes that there are health and safety concerns related to constructing and decommissioning renewable energy projects including the "Risk of harmful interactions with plants and animals (e.g., soil-based pathogens, especially Valley Fever [*Coccidioidomycosis*])." (DRECP IV.22-9) "The fungus that causes Valley Fever is present in soils within the Plan Area, particularly in the West Mojave area. Disturbance of these soils during construction and decommissioning could release dust contaminated with Valley Fever spores that could be inhaled by workers and others in the area, resulting in illness or, in severe cases, death." (DRECP IV.22-9)
- 17. Under discussion of the No Action Alternative, the DRECP notes that: "Construction, operation, and decommission activities would involve movement of soil materials. If soil containing the Valley Fever fungus is disturbed by construction, natural disasters, or wind, the fungal spores can be released into the air and spread." (DRECP IV.22-27) For mitigation under the No Action Alternative the DRECP suggests strict dust control including "spraying water on unpaved roads" (DRECP 22.21) However, I can assure the readers that spraying water on the unpaved roads of the Ocotillo Wind Energy Project on BLM lands in Imperial County was not always used unless there were observers photo-documenting dust violations, water quickly evaporated, and if groundwater

is used, it could pose serious problems related to declining groundwater resources in hot dry environments when water conservation is paramount during the current drought. Furthermore, trucks traveling on unpaved roads were often speeding along generating clouds of dust before water trucks ever arrived.

- 18. For impacts outside the Plan area under the No Action Alternative DRECP notes that: "Certain public health conditions could arise as well. Valley Fever fungus is endemic in some desert soils; if soil containing the fungus is disturbed, fungal spores could be released and inhaled." (DRECP IV.22-22) However, the DRECP asserts that mitigation measures mean that risk of exposure and health impacts of valley fever "would be less than significant." (DRECP IV.22-24)
- 19. Our answer to this assertion of less than significant risk is to direct DRECP reviewers to the slide presentation by CDPH's Wilken in 20124 related to valley fever at the solar project in San Luis Obispo. Those slides will reveal that not only in Imperial County are efforts to reduce construction dust and dust generated along unpaved roads unsuccessful, the same is true at other industrial scale renewable energy project sites as well.
- 20. In discussion of the Preferred Alternative the DRECP Impact PS-1 notes that "Certain public health conditions could arise as well. Valley Fever fungus is endemic in some desert soils; if soil containing the fungus is disturbed, fungal spores could be released and inhaled." (DRECP IV.22-26) and states that PS-1a to lessen exposure to valley fever spores would be to increase "dust suppression" (DRECP IV.22-29) to reduce the 'Risk of harmful interactions with plants and animals (e.g., soil-based pathogens, especially Valley Fever [*Coccidioidomycosis*]). But who will be there to ensure compliance and effective control of dust? How and why should the public feel confident that dust control will be implemented when we have seen first hand on an on-going basis that dust control or dust suppression was not always effective during construction or even years after construction ceased? And more importantly, if dust control using other than water and work stoppage are used, what are the potential adverse public health impacts or environmental impacts of using chemical dust suppressants?
- 21. When the DRECP discusses typical mitigation measures for solar and wind projects related to fugitive dust and dust suppression, there are additional public health and environmental concerns. DRECP states that: "The definition of stabilized surface for purposes of fugitive dust control means that fugitive dust would be controlled by <u>using a soil binding agent</u> or other effective means to suppress and keep it from leaving project boundaries, and also neither causing nor creating fugitive dust plumes that would leave the project site." (DRECP IV 2-15, emphasis added.) However, I was unable to find any references that indicate that the use of such dust suppression using a soil binding agent is either safe for the environment or does not have the potential for adverse public health impacts if inhaled. So, again, the DRECP is <u>missing important information</u> both in text and in its list of references.
- 22. DRECP AQ-1 a (b) for control of fugitive dust recommends; "Stabilize unpaved construction roads and unpaved operational site roads (as they are being constructed) with a nontoxic stabilizer or soil weighting agent that can be determined to be as efficient or more efficient for fugitive dust control as California Air Resources Board-approved stabilizers, will not result in loss of vegetation, and will not increase other environmental impacts. During grading, use water as necessary on disturbed areas in construction sites to control visible plumes. Stabilize disturbed soils (after active construction activities are completed) with a nontoxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method. Reduce or eliminate the frequency of watering during periods of precipitation." (DRECP IV.2-26) However, the problem is that these

techniques appear to have failed when employed at the Ocotillo Wind Energy Facility in Imperial County, both during construction and even 3 years after construction. Similarly, vehicles have not adhered to the need to reduce speeds to prevent generating dust as vehicles travel on unpaved roads. Additionally, run-off along and across unpaved constructions has been a real problem for residents of Ocotillo during and following heavy rains over the mountains and alluvial fans.

23. The use of dust suppressants as mentioned as part of a dust control plan have been shown to have a number of serious effects on air quality, soils, biological resources, surface and groundwater as discussed in an article about the potential environmental impacts of dust suppressants on the environment, both on and off the site. Of particular concern as a public health and environmental justice issue, the report states:

3.2.4 Effects on Air Quality

Dust suppressant use can affect air quality characteristics in a number of ways. In arid areas, for example, the use of water may add moisture to air fostering the proliferation of microorganisms. Dust suppressants that adhere to soil particles can be re-entrained into the air with strong winds, potentially adding contaminants to the air in addition to particulate matter. It is noteworthy that dust suppressants have little efficacy at suppressing small respirable dust that have the potential to be inhaled directly into lung parenchyma and cause lung disease (Reilly et al., 2003). Dust suppressants are generally used to comply with PM10 regulations and improve visibility; but could be potentially harmful since smaller dust particles (less than $10 \,\mu$ m) can be inhaled. Lastly, some dust suppressants may have volatile organic compounds in the products that may be dispersed into the air when the product is applied. This is a particular concern in the formation of ozone." (Piechota T. Et al. US EPA Expert Panel Summary 2002 Potential Environmental impacts of dust suppressants: "Avoiding another Times Beach" 107CMB04.Rpt. 03/20/2004 (at p. 35 of 98)

- 24. Then the report noted that "Potential or observed negative impacts to adjacent landowners" "would cause the experts to limit the use of dust suppressants." (Piechota 2002 at p. 36 of 98)
- 25. Thus, the DRECP must reassess the issues related to "effective dust control" and the potential adverse environmental and <u>public health impacts</u> of any dust suppressants considered under mitigation for fugitive dust and construction generated dust, especially where projects are near existing residences or communities. There must be an opportunity for meaningful public input and consideration of public input related to dust suppression techniques and/or products prior to any project approval, and opportunity for reconsideration if there are subsequent adverse public health impacts.
- 26. How do dust suppressants change after application when exposed to solar radiation, oxidation, biological changes, dissolution and physical weathering in a climate like Imperial County or other DRECP countries with high ambient summer temperatures? How do the dust suppressants break down and how do they move off site or away from the site of application? Under what circumstances would paving be a better choice for managing construction dust from unpaved roads in terms of environmental and public health considerations where use of excessive amounts of water cannot be justified or effective for dust control? When there were problems related to foamy flood waters following application of dust suppressants at the OWEF site, residents had an extremely difficult time trying to get information about the soil stabilizer or dust suppressant used and what its chemical composition was. The difficulty of getting timely and accurate information contributed to public lack of confidence related to efforts to mitigate dust impacts. The

information is especially important when and if dust suppressants become air borne after time.

27. There should be outreach by DRECP and County Public Health staffs to learn of the first hand experiences of those who have endured the adverse air quality impacts related to construction and maintenance of industrial scale renewable energy projects, including both solar and wind, in the communities that have been impacted by increased dust and dust storms. Impacted residents will have potentially a very different assessment of what works, what doesn't work, and how well dust control mitigation is really being effectively implemented and enforced. There must be independent air quality monitoring, not just an "Air Quality Construction Mitigation Manager" that is hired by the Project owner (DRECP IV.2-14) in order to avoid actual or perceived conflict of interest.

All industrial scale Renewable Energy Projects should contribute financial resources or compensatory mitigation costs to a public health fund for air quality monitoring and air quality/dust related health problems in Counties and communities where industrial scale renewable energy projects are located.

- 28. The DRECP discusses compensatory mitigation related to biological resources, without mention of anything comparable for public health impacts. From a public health and environmental justice perspective, it seems imperative that there be consideration of a fund for compensatory mitigation with adequate funding for public health related health problems related to poorer air quality and potential exposure to spores that cause valley fever. Compensatory mitigation costs for public health could include costs for the purchase of additional air quality monitoring equipment, funding for monitoring and maintenance of air quality monitoring stations. Additional costs should cover testing, diagnosis, and treatment of valley fever, caused by inhaling spores from disturbed soils and high levels of dust related to construction and travel on unpaved surfaces. Funds should also be available to cover increased costs for treating those with asthma and allergies made worse by poorer air quality associated with construction od renewable energy projects. These are important public benefit costs (compensatory mitigation costs for public health) to offset liabilities that go along with poorer air quality in economically challenged communities.
- 29. Health impacts (valley fever) resulting from exposure to spores in blowing dust during construction activities at industrial scale solar projects in San Luis Obispo County have been documented and investigated by the California Department of Public Health. (Exhibit 71 Wilken 2014 for the CDPH presentation about valley fever for the Environmental Justice Task Force meeting in July 2014.) It is expected that the results of that CDPH/CDC study will be published this spring. (Email communication from CDPH staff to Harmon February 2015.) The Wilken study points out the far more than local concerns about valley fever, because many of the construction workers have traveled from other counties and states to work on these renewable energy projects. Worker and public education are essential. However, friends who have done contract work for solar and wind projects report absolutely no education about health risks related to construction generated dust, nor have they seen construction stop during periods of high dust generation.
- 30. <u>http://www.wunderground.com/news/valley-fever-20130506</u> "Valley Fever Hits Thousands in Dry West Farmland" | Weather Underground 5/6/2013 Article includes photos of intense dust clouds called "haboobs" in Arizona. It was the haboob in 1977 that took valley fever from Bakersfield area to Sacramento. I do not recall any haboobs in Ocotillo since 1977 prior to the construction & roads dozing up desert crust for Ocotillo Wind Energy Project in 2012. Now we have them and they roll from Ocotillo area into Imperial Valley cities to east. This means that thousands of residents in Imperial County are potentially at risk from a number of respiratory problems associated with worsening air quality, and from whatever biological materials may be
airborne with the blowing dust.

- 31. Both Imperial County and the DRECP should consider that a recommended means of compensatory mitigation would be to require all project applicants to contribute a substantial sum of money to help fund additional air quality monitoring equipment and operation of monitoring equipment. In addition, funds should be made available to help cover the costs for providing care and medications for those suffering from asthma, allergies, and valley fever, all of which may be caused by or exacerbated by construction activities related to industrial scale renewable energy projects. All chronic health impacts become even more of a problem in economically challenged communities where health care is already unaffordable and air quality is already poor.
- 32. Furthermore, it is recommended that all industrial scale Renewable Energy projects contribute to a single fund, because it is not possible to ascertain from what source any disease causing fungal spores might originate. These adverse health impacts related to increasing levels of dust in the air must be considered as adverse socioeconomic and environmental justice concerns, because in small desert communities, those who are ill already have difficulty paying for treatment, especially long-term, and very expensive treatment for valley fever if it is not easily cured and diagnosed early.

Additional documentation about why valley fever should be considered a serious public health concern in the DRECP areas.

- 33. I have been doing research on Valley Fever in the arid southwest since I was first made aware of the concerns about valley fever in the inmate population in California prisons by a <u>New York</u> <u>Times</u> article in 2006. I have raised concerns about the public health impacts related to dust generation caused by construction for large industrial scale earth disturbing activities since that time. Decision-makers have largely ignored the concerns stating that: "we don't talk about valley fever here, because it is bad for jobs". But it is much worse for the health of workers and downwind residents or visitors when spores for <u>Coccidioides immitis</u> (cocci spores) that cause valley fever are in the air.
- 34. How bad can valley fever get? Just ask CD, a friend, who had been doing volunteer work in the Carrizo Plains before he was hospitalized with valley fever last year. Even he, with access to excellent medical care in Los Angeles, did not get a correct diagnosis when he first went to the Emergency Room. How much more difficult it has been in places such as Imperial County, where I have been told that emergency room health care providers have refused to order tests for valley fever for community acquired pneumonia (CAP).
- 35. How widespread is valley fever, and how far can sensitive receptors/people or animals be from the source of the cocci spores originate? Consider the case of the gorilla at the Los Angeles Zoo. That animal will require expensive antifungal medications for its life, at a potential cost of up to \$17,000.month. One assumes that the gorilla has not traveled outside LA recently. http://www.latimes.com/science/la-me-0620-gorilla-20140620-story.html. So what does this say about potential exposures to residents of LA and elsewhere in southern CA, whether or not they live in the DRECP counties? It is unlikely that the gorilla with dust blowing into the city from elsewhere in southern California.
- 36. If that is what it will cost to provide antifungal medication for a captive gorilla, can you imagine how economically challenged persons who already are facing health concerns related to diabetes, asthma or allergies are going to be able to meet health care costs if they get Valley fever? Why is this a concern? A recent article points out that diabetes or ethnic backgrounds are additional valley fever risk factors. (http://wwwnc.cdc.gov/eid/article/21/1/pdfs/14-0836.pdf Wheeler c. et al

2015. Rates and risk factors for Coccidioidomycosis among prison inmates in CA, 2011. <u>Emerging</u> <u>Infectious Diseases v. 21 No.1 Jan 2015 Diabetes is a risk factor for severe pulmonary cocci, being</u> African American a risk factor for disseminated disease.)

- 37. Another article that discusses how far valley fever can spread is from the <u>New Yorker</u> last year. <u>http://www.newyorker.com/reporting/2014/01/20/140120fa_fact_goodyear?printable=true</u>. "Death Dust: The valley fever menace." The article describes the 1977 dust storm in Bakersfield that carried the dust more than 400 miles to Sacramento where more than 100 people got valley fever. CDPH also stated that there were cases in San Francisco from that dust storm. This article also mentions what the military knew about cocci and cocci hot spots during and after WW II, in addition to problems related to solar development in Antelope Valley and San Luis Obispo County. The article noted that the "highest rate of infection is in Antelope Valley, a rapidly developing outpost of the [Los Angeles] county" ... where "the number of cases there has increased five hundred and forty-five percent." So why would the DRECP fail to disclose the potential widespread public health impacts associated with the dust generating construction of renewable energy projects within the DRECP area with its low rainfalls?
- 38. Neither the State of California, nor the federal government can ignore the issue of valley fever because the 1958 Army report provides great detail about what the Army knew and when and the impacts of valley fever on military operations and POW camps within the DRECP area. In fact, the Army chapter on valley fever identifies locations with valley fever problems that have since been abandoned for military activities, but now are and have been proposed for industrial scale renewable energy projects. Construction activities at those locations will put both workers and downwind rural and economically disadvantaged, environmental justice communities at risk for some potentially very serious health risks and costs. Who pays?
- 39. Perhaps the authors of the DRECP choose to ignore the potential adverse health impacts of valley fever, but there has been considerable media coverage of the valley fever health problems in the Southwestern US, including California. Even, international coverage from as far away as China. Please see: <u>http://www.bbc.co.uk/news/magazine-23166839?print=true</u> BBC News Valley fever: A lethal illness in the dust 16 July 2013.
- 40. PBS documentary on valley fever: KVIE Health series: <u>Deadly Dust Valley Fever</u> "The growing problem of Valley Fever in California and other western states that affects 150,000 people each year." That documentary included footage and reference to the Army research I have been sharing for years related to concerns about siting renewable energy projects in arid areas known as cocci hot spots, but that others have been ignoring. See the 1958 medical report: http://history.amedd.army.mil/booksdocs/wwii/PM4/CH16.Cocciodioidomycosis.htm.
- 41. <u>http://www.sacbee.com/2014/08/02/6600836/drought-conditions-travelers-can.html</u> Drought conditions, travelers can spread Valley fever into California's northern counties ... so everyone needs to be aware of valley fever symptoms if they travel.
- 42. <u>http://www.theatlantic.com/health/archive/2014/08/the-mysterious-fungus-infecting-the-american-southwest/375191</u>/ The mysterious fungus infecting the Am SW. A lot of emphasis on farmworker exposures.

http://www.nytimes.com/2013/07/05/health/a-disease-without-a-cure-spreads-quietly-in-the... Brown P.L. 2013 "A disease without a cure spreads quietly in the West". NY Times 2013/07/05. CDC calls valley fever "a silent epidemic" which caused a federal judge to order transfer of about 2,600 vulnerable inmates from two San Joaquin Valley state prisons. "Valley fever was a familiar presence during the Dust Bowl.."

- 43. http://www.motherjones.com/environment/2015/01/valley-fever-california-central-valley-prison Ferry, D. 2015-01-30. "How the government put tens of thousands of people at risk of a deadly disease. If it killed politicians instead of prisoners, this illness would be national enemy #1." Mother Jones This powerful article includes a map that shows California counties with reported cases of valley fever, but many cases are likely not reported. One source, after reading the article, reported to me that the inmates at one prison had all been recently tested for valley fever, that the article appeared to be correct, and was encouraged to believe that health care within the prison is actually getting better. But, who and how will health care costs be met after inmates are released from prison? Is it the Counties of origin or the State? And, who will cover the unmet needs for housing, food and health care for families of those too ill to get employment that pays enough to cover such costs? Children are also the collateral victims of valley fever experienced by inmates. For me, another question is why did the State of California choose to build prison facilities in locations which should have been known to be cocci hot spots based on information known to the military during WW II? What are the public health implications of even more dust generation if renewable energy projects are located in various parts of the DRECP area with historic documentation of valley fever or where recent soil studies are finding cocci spores in the soils?
- 44. Economically challenged and environmental justice communities do not need additional health care costs related to worsening air quality from dust generating construction for industrial scale renewable energy projects in the DRECP preferred development areas or elsewhere.
- 45. In fact, there is so much information about valley fever in California, together with maps that reveal that most if not all of the locations covered by the DRECP are cocci endemic areas, and therefore, whatever is in the dust generated by project construction may pose a health risk not only to the workers but to other sensitive individuals exposed to that dust. Accordingly I am including a nine (9) page summary with links to some of the most relevant or interesting articles and videos about valley fever, and additional information, from published research, about health concerns related to possible adverse health impacts from exposure to cyanobacteria in the desert crust that may become airborne in dust and be responsible for pathogenic responses in sensitive individuals.

Biologists must be required to submit field reports directly to US FWS and CDFW in addition to making the information available to Lead Agencies and Project applicants/owners. Biologists must never be required to sign "confidentiality agreements" related to biological filed work

- 46. Past experiences have revealed that when biological resource inventories are done by biologists paid by the project applicant, surveys have been woefully inadequate and routinely miss species that are easily recognized by local residents when they look after rainfalls sufficient and at the appropriate time to be followed by growth and flowering of annuals. Furthermore, I have heard of repeated concerns about skewed survey protocols directed by contractors funded by project applicants.
- 47. Thus, it is imperative that there be a pool of money to hire competent biologists who will report field biological survey information directly to US FWS and CDFW at the same time information is made available to any project applicant or the County. Staff at both US FWS and CDFW have responded to Harmon that they know there is a problem with the accuracy and completeness of biological resource data from industrial RE projects.

III.6 Groundwater, water supply and water quality fails to recognize that California Water Code Section 106 which identifies domestic use as the highest priority, followed by irrigation. DRECP Section III.6 also includes errors of omission and errors of fact.

48. DRECP Sec. III.6.1.2.1 cites the California Constitution and states that: "California Constitution,

Article X, Section 2 states that water resources of the state be put to beneficial use to the fullest extent possible and prohibits water waste, unreasonable use, or unreasonable methods of use." (DRECP III.6-4) However, the DRECP fails to include the priorities of use identified in the California Water Code. Specifically, Section 106 of the California Water Code states that it is "the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation." Section 106.3 adds that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes," Essentially, Water Code Section 106 is critical in understanding Socioeconomic and Environmental Justice concerns that over use of groundwater for construction and maintenance of renewable energy projects, including for dust suppression, may well be inc conflict with the domestic needs of already challenged communities facing water shortages.

- 49. DRECP omission of any discussion of California Water Code Section 106 is a serious omission. Under CA Water Code, therefore, it seems unlikely that use of groundwater for construction mitigation or support of industrial renewable energy projects overlying groundwater basins used for domestic or irrigation purposes could ever take priority over domestic or agricultural needs where fossil groundwater basins cannot be recharged, especially during ongoing droughts. This should be especially true for US EPA designated Sole Source Aquifers, such as the Ocotillo-Coyote Wells Groundwater Basin. This is the same as the southwest portion of the Coyote Wells Valley basin in Table III.6-1, (DRECP III.6-10) and DRECP Fig. III.6-1 for Groundwater Basins. The Ocotillo-Coyote Wells Groundwater basin has been reported as declining since the first USGS study in 1977, with continued annual monitoring by USGS. See: EPA qrg_ssamap_ocotillocoyotewells 2001 for sole source aquifer hydrologic boundary.
- 50. There must be special restrictions related to groundwater use if a project is located in the overdrafted US EPA designated Sole Source Aquifers such as the Ocotillo-Coyote Wells Groundwater Basin (see Exhibits 33 and 34 in August 22, 2014 comments on the IC RETE NOP. (Ocotillo-Coyote Wells Groundwater Basin in 1996 "Ocotillo-Coyote Wells Aquifer in Imperial County California Sole source Aquifer Final Determination" Federal Register Vol. 61, No. 176, Sept. 10, 1996 Notice US EPA. http://www.gpo.gov/fdsys/pkg/FR-1996-09-10/pdf/96-23066.pdf and http://www.epa.gov/safewater/sourcewater/pubs/qrg_ssamap_ocotillocoyotewells.pdf) Restrictions related to use of potable groundwater for industrial purposes should also be imposed in other similar groundwater basins designated as Sole Source Aquifers.
- 51. DRECP contains a factual error when in Sec. III.6.2.2 Sole Source Aquifers it asserts that the Ocotillo-Coyote Wells Sole Source Aquifer is a part of the Ocotillo-Clark Valley or Basin 7-25 at DRECP III.6-25. Trust that I know I am correct. I have been involved in decades worth of litigation related to land use and groundwater issues to protect the Ocotillo-Coyote Wells Groundwater Basin since I first moved to Ocotillo in Imperial County in 1977! Indeed, litigation related to US Gypsum's intent to export even more potable groundwater from this sole source aquifer for industrial purposes, filed in January 1999, is still ongoing. Please correct the information in DRECP Sec. III.6.2.2. If the information about the Ocotillo-Coyote Wells Groundwater Basin is incorrect, how much other groundwater related information is incorrect? Yes, this basin straddles the San Diego County line, but it does so at the Mexican border, not further north as for Basin 7-25. The Ocotillo-Coyote wells basin is in the SW portion of Basin 7-29 and extends to the Mexican border.
- 52. It is extremely important to remember that; "Recharge, however, can be relatively small in the

same basins because of the arid climate (see Section III.6.3.3.2), and the large storage capacity can create the misleading impression that groundwater availability is high, leading in turn to potentially erroneous long-term commitments or allocations of the resource that ignore perennial groundwater yield constraints." (DRECP III.6-29) This is why there is so much concern about projects that propose to use groundwater for the industrial scale renewable energy projects. All of the projects of which I am aware have grossly underestimated the amount of water required for construction and dust suppression. Many, if not most groundwater basins without a hydrologic connection to the Colorado River, or other significant surface water, have limited or essentially no significant recharge and are "fossil groundwater basins", relicts of an earlier time when rainfalls supported the megafauna whose fossil remains have been found in places like Anza Borrego State Park and elsewhere throughout the desert. Past times when greater rainfall supported much larger animals in hte area than today.

- 53. DRECP needs also to acknowledge that within the boundaries of a groundwater basin, groundwater quality and yields may vary greatly depending on location and underlying geologic formations including earthquake fault zones. Pumping yield at one location may be many times greater than it is even less than one mile away, and with different impacts. This is something we have learned from decades of USGS groundwater monitoring in the Ocotillo-Coyote Wells Basin.
- 54. DRECP Fig. III.6-6 for Groundwater basins that receive substantial surface water supplies is incorrect when it includes the Ocotillo Coyote Wells groundwater basin as receiving substantial surface water. When there are heavy rains in the mountains there is often flooding that rushes across the alluvial fan, but exits across the NW-SE trending Elsinore and Laguna Salada Earthquake faults without standing long enough to provide any noticeable recharge to the basin which in places is from 100 to 300 feet below land surface. USGS's Dr. John Izbicki keeps reminding me that there is essentially no recharge to this basin because surface water cannot saturate such a depth of caliche and dry soil to reach the water table. That is why there has been no recorded increase in the level of potable groundwater even decades after three 100 year storms and floods since 1976, even though pumping has declined. In one portion of the basin where export of about 100 AF/Y occurred for 5 years, stopping in 1982, the basin static water level in a nearby domestic well has not recovered to pre-export levels in almost 33 years. In other words, USGS monitoring data revealed that the groundwater basin did not respond as predicted in its original 1977 report. Thus, even modeling and predictions by an independent governmental agency may seriously underestimate the impacts of groundwater pumping in portions of a basin that may be more sensitive to water extractions that other portions of that same basin. A serious caution for any renewable energy project that proposes to rely on groundwater for construction, dust suppression, and operations.
- 55. Depicting substantial surface water in a groundwater basin suggests recharge of some kind, regardless of quality. Thus, it would be more accurate to correct Fig. III.6-6 and remove the Ocotillo Coyote Wells groundwater basin, or at least the portion overlying the alluvial fill to the east of the Jacumba Mountains and west of the Laguna Salada Fault from the green portion of the map. Another explanation might be that evapotranspiration exceeds any run-off that may have percolated the upper portions geographic boundaries of the basin without ever reaching the aquifer at depth. Although surface flow and runoff from precipitation and flooding in the mountains across the Ocotillo-Coyote Wells basin is toward the Salton Sea, subsurface groundwater movement is toward the south east and flows into Mexico.
- 56. DRECP Fig III.6-14, appears to be incorrect with respect to salinity of groundwater underlying the irrigated portion of Imperial County. Many years ago, I was informed by a water scientist that the

groundwater quality under irrigated lands exceeded 1,200 pp. Please check.

57. Because I found a number of errors that were easy for me to document, I wonder how accurate other information in the discussion of groundwater and water resources is accurate. I do not have detailed knowledge about other groundwater basins within hte DRECP.

IV.6 Groundwater, water supply, water quality also has an error of omission when it fails to include discussion of groundwater impacts related to construction, operations, maintenance and decommissioning of wind energy projects

- 58. "Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years; overdraft can lead to increased extraction costs, land subsidence, water quality degradation, and adverse effects on current users." (DRECP IV.6-2) This is especially critical for sole source aquifers and other sensitive desert groundwater basins. The history of what has happened to the Ocotillo-Coyote Wells Sole Source Aquifer as the result of industrial and commercial export from the basin should be instructive as a cautionary note for what might happen to any other small fossil groundwater basins if industrial scale solar projects are permitted to rely on groundwater. DRECP III.6-3 may sound to a non-groundwater user, as if there is only a small amount of water required for maintenance, when presented as AFY/MW, however, when one considers the MW expectations for any given project, that annual use of water is not insubstantial and not without potential for adverse consequences depending on location of extraction and nature of overlying construction activities impacting drainages. Experience has shown that all solar projects in the San Diego and Imperial County areas use many times more water for construction that originally projected and approved.
 - 59. "Typical water consumption rates for solar technologies are provided in Volume II, Chapter III, Section II.3.1.4.1 (Table II.3-21). For solar photovoltaic facilities, regular water usage for cleaning is 0.05 AFY/MW. Solar thermal consumes relatively more water, and the water used for steam generation, cooling, and other industrial processes can be substantial. Solar thermal systems can be wet cooled, hybrid, or dry cooled. Wet-cooled systems use annually up to 14.5 acre-feet of water per megawatt (AFY/MW). Hybrid systems use dry cooling for much of the year, but switch to wet cooling when air temperature rises above approximately 100° F; hybrid systems use 2.9 AFY/MW. Dry cooling further reduces the amount of water used, but also reduces efficiency and output capacity, particularly in hot desert climates. Dry-cooling systems use 1.0 AFY/MW." (DRECP IV.6-3)
- 60. Why doesn't the DRECP Section IV 6.1.1 discussion include estimates for how much water is required for construction, dust suppression and maintenance of cleared areas associated with wind energy projects in the desert? This has been as issue of concern for to Ocotillo Wind Energy project in Imperial County, where this unreliable project was spread across more than 12,000 acres of previously protected public lands managed by BLM.
- 61. DRECP Sec. IV.6.1.2 discusses the CEQA standards of significance. However, based on experiences with the Ocotillo-Coyote Wells basin, it is essential to remember that it is the impacts of pumping that occur and affect those who live on private land or in very small, groundwater-dependent residential communities, often surrounded by thousands of acres of public lands. Groundwater bain impacts must be given special consideration, not only what changes occur in characteristics of the basin 5, 10, or even 20 miles away upgradient of existing domestic use. It is not basin-wide impacts that count when CA Water Code Section 106 is considered, it is local impacts. This is true for both alluvial fill groundwater basins and those that occur in areas of

fractured bedrock.

- 62. Decades of litigation dealing with the unanticipated adverse impacts following approvals or uses based on optimistic assumptions about groundwater availability should serve as a warning if projects intend to rely on groundwater for renewable energy projects in desert areas. So, an additional question related to CEQA groundwater and water quality issues should be to consider the very local impacts of groundwater pumping, not merely the basin-wide concerns. Each basin will have its own characteristics. Transmissivities of underlying formations may vary greatly in locations even only a mile apart. Over the decades we have been left with residential developments approved before desert groundwater issues were well understood, but those existing community and domestic water uses must be respected because groundwater users often have no alternative other than to continue to use the water that underlies their properties or to move out of the basin. Remember that for the time being, it is my understanding that correlative water rights principles still apply in California. Overlying users are entitled to the reasonable beneficial use of water under their properties, but only to the extent that it does not adversely impact other overlying users.
- 63. DRECP discussion of CEQA Guidelines concerns related to drainage, runoff, and flooding issues DRECP IV.6-5) appear to have been given little serious consideration in the approvals and construction of the Ocotillo Wind Energy project, because there have been very serious flooding and drainage issues caused by construction in the drainages and washes that were subject to such serious flooding in the hurricanes of 1976 and 1977. In 1976, flooding and runoff from the mountains destroyed the westbound lanes of Interstate 8 and destroyed the railroad to the southwest of Ocotillo, in addition to removing all vegetation and homes through the center part of Ocotillo. The OWEF project has altered portions of these drainages, and flood waters have found new channels that have had adverse impacts on the some portions of the community. True, Ocotillo is an example of a community that should never have been approved at its location on an alluvial fan near the discharge from a mountain canyon. But geography and geology were not considered by the County when those approvals were made and residential development began many decades ago.
- 64. Nevertheless, Ocotillo and other small, economically challenged desert communities have real people living there. As a matter of environmental justice, such small communities throughout the California desert should not be considered as sacrifice areas to be ignored in the rush to develop industrial scale renewable projects to export electricity to the more affluent coastal urban areas hundreds of miles away. Throughout the California desert, there are scores of other small communities like Ocotillo that would feel threatened if they understood how the potential adverse groundwater and water supply issues related industrial scale renewable energy and transmission could affect their communities and lives.

65. DRECP Sec. IV.6.2.1.2 Impacts of Construction and Decommissioning

"Ground disturbances during construction potentially affect the quantity and timing of groundwater recharge. Relevant activities include grading and clearing vegetation for equipment and operations, and temporary or permanent changes to drainage and flooding characteristics. Projects that grade the land surface, remove vegetation, alter the conveyance and control of runoff and floods, or cover the land with impervious surfaces can alter the relationships between rainfall, runoff, infiltration and transpiration. This is of particular concern for solar projects, which occupy large areas and consequently tend to increase runoff and decrease transpiration ." (DRECP IV.6-8)

66. DRECP Sec. 6.2.1.2 includes no discussion of the quantity or impacts of water use related to

industrial scale wind energy projects in the desert. This is of concern because large quantities of water are required to make the concrete foundations to support the wind turbines and impacts of roads and grading necessary to transport the large and very heavy wind turbine components to the installation site for each turbine. Please note that the concerns identified by DRECP for solar projects are exactly the concerns that have been related to the siting and construction for the Ocotillo Wind project. The acreage at OWEF was large, but not all clearing was done in a single block as has been done for industrial scale solar projects. Nevertheless, grading and constructing roads in biologically and hydrologically sensitive areas for any large scale renewable energy project can have significant hydrological and biological consequences in addition to the public health and environmental justice impacts described elsewhere in these comments.

67. DRECP IV 6.2.1.4 includes no discussion of the impacts of decommissioning a wind project or the amount of additional adverse environmental impacts that can come when things go wrong at a wind project. For the Ocotillo wind project, an eleven ton blade was thrown to the ground, fluids are repeatedly photo documented as leaking from the nacelle and blades, a recent fire at one turbine required maintenance crews to be using respirators and hazmat suits as they were lifted by a crane and to work inside the turbine. Such failures have resulted in additional impacts to drainages and other resource values as additional heavy equipment goes to the scene of an accident. This project has only been operational for a few years, but if the past is any foretaste of what is to come, there is the potential for additional impacts to drainages and/or groundwater resources. To date, it appears to me that any attempts at revegetation in the area realted to Ocotillo Wind have been a failure and piles of bulldozed vegetation remain along newly created roads. In an area with less than three inches of annual rainfall expected, it seems unlikely that revegetation will be successful in less than hundreds of years, if ever, where compaction and vegetation eradication have been massive.

68. Additionally, DRECP Table IV.6-1 does not include any estimates for renewable energy development related to wind projects, even though wind is identified as a renewable energy source elsewhere in the DRECP, including at p. IV.6-23. Why is there no information on wind energy water use made public? Even if this table is for the No Action Alternative, wind must be included, because BLM still has applications for industrial scale wind energy projects on public lands. It gets tedious to have to search throughout the DRECP or Appendices to find such information on water use for wind energy projects. Later, we do learn that: "The potential acres of groundwater basin impacts on BLM lands by technology type are shown in Table R2.6-8 (Appendix R2). 115,000 acres within 28 basins are assumed to be available for solar, wind, geothermal, and transmission development." (DRECP IV.6-41, in SEC. IV.6.3.2.2.1) Table R2.6-3 at DRECP R2.6-13 gives the acreage of wind and solar projects in the No Action alternative for SW Imperial County. Is it true that there is a proposal for another 10,000 acres for wind energy development in addition to the already more than 12,000 acre OWEF project? How much water is estimated to be requires in AF/MW for construction of a wind project? Table R2.6-9 suggests that there would be an additional 6,000 acres of wind energy development (DRECP R2.6-20) in addition to impacts related to additional transmission. Table R2.6-5 for the Preferred Alternative DFA lands indicate no future potential acres of groundwater basin impacts for the Coyote Wells Valley no solar, no wind and no geothermal, but 900 acres impacted by transmission. (DRECP R2.6-15) However, without additional explanation, the endless pages of tables begin to make very little sense. Should I feel reasonably safe knowing that Table R2.6-5 suggests that the Ocotillo-Coyote Wells Sole Source Aquifer should expect no future threats, other than from inappropriate County land use decisions, such as the most recent proposal to put industrial scale solar on land zoned for residential use?

- 69. Mitigation measures for groundwater impacts related to industrial scale renewable energy projects may be inadequate to protect groundwater resources and overlying uses because not all groundwater impacts are quickly observed when groundwater migrates slowly through a groundwater basin or if hydrological assumptions and models turn out to be overly optimistic about groundwater availability and underestimate impacts of pumping. I am glad to see that DRECPnoticed that "Groundwater use by renewable energy projects will cause significant impacts on water resources." (DRECP IV.6-21)
- 70. Furthermore, it is my understanding that solar panels and various components of wind turbines are classified as hazardous waste once they are damaged or decommissioned. To what sites will those wastes be transported, stored, or subject to partial recycling? And what are the potential impacts to soils and watersheds if hazardous materials remain at project sites? I am hoping, but uncertain, that these questions have been addressed elsewhere in the DRECP.
- 71. The use of water for geothermal development ranging from 12,000 to 27,000 AFY is startling. (DRECP IV.6-11) And, the DRECP states that "Wet cooled geothermal projects account for almost 87,000 AFY of the total water use under the Preferred Alternative." (DRECP IV.6-24) Since most of the proposed geothermal development would be in Imperial County, the question is to what extent Imperial Irrigation District can supply Colorado River water to support this renewable energy without reducing further the water available to continue irrigated agriculture on lands supplied with water from IID. If geothermal energy is developed will that mean further conversion of agricultural lands to non-agricultural uses? To make water available for geothermal development? And will any water reach the Salton Sea from the south after 2017, or will any agricultural run-off be treated to be used for geothermal operations?
- 72. DRECP Table IV.6-2 does not include information related to development of industrial scale wind projects and their estimated water use. Why? Is Imperial County with its agricultural lands being targeted for industrial scale solar and geothermal energy development because the Imperial Irrigation District is the supplier of Colorado River water, a water resource perceived by many as perhaps less vulnerable during times of drought? Recent studies, including in February 2015 by Bureau of Reclamation include projections for reduced water available for irrigation and include impacts from both drought and climate change. The future will not be the same as the past anywhere in the southwest in terms of water availability.
- 73. I have not been able to understand assertions that developing solar and geothermal energy projects on lands that will be exposed as the Salton Sea water levels recede could ever serve to reduce the potential for adverse air quality impacts. I do, however, understand that both Imperial County and IID are looking to the State of California to fund restoration projects at the Salton Sea. I am, however, uncertain about where the money or water will come from. And in times with projected worsening decades-long drought in the southwest, I am uncertain that there will be a source of unallocated or un-needed surface water from any watershed or tributary basin to be imported to support industrial scale renewable energy projects in the California desert, regardless of the assurances of DRECP IV.6-37.
- 74. From the perspective of years of research, USGS groundwater monitoring and trying to address the consequences of overwhelmingly inappropriate land use decisions at the County level, I have no confidence that the Groundwater mitigation measures identified in the DRECP at IV.6-39, 40 will offer meaningful protection to the long term sustainability of the underlying groundwater resources for the benefit of future overlying uses or for biological resources depending on availability of groundwater to support vegetation or close or distant seeps and springs for wildlife. I feel discouraged that the lessons learned from past litigation keep haunting us, following repeated poor

decisions ignoring the groundwater resource issues and limitations in a sole source aquifer. How much greater the threats must be elsewhere.

- 75. DRECP IV.6-41 says that: "Under the Preferred Alternative, development in BLM lands can affect groundwater in 12 basins characterized as either in overdraft or stressed." However it fails to direct the readers attention to either a table or Figure which shows where those basins are located or which projects might impact those basins. Why are readers expected to endlessly search for detailed information?
- 76. DRECP Sec. IV.6.3.2.2.2 (at IV.6-42) refers to designations of new ACECs, but again to direct the reviewer to any Figure to locate such proposals.
- 77. Based on what I have learned about groundwater impacts and the success or failure of mitigation measures related to groundwater pumping in SW Imperial County, I am not convinced that the groundwater mitigation measures described in Sec. Iv.6.3.2.6 (beginning at DRECP IV.6-43) to reduce adverse impacts from renewable energy projects are likely to be successful or adequately protective of the groundwater resources for the long term benefit of overlying or downgradient beneficial uses. GW-2 test that includes "providing compensation to well owners and water users"(DRECP IV.6-44) suggests that the DRECP intends to put industrial use for renewable energy projects as a priority ahead of domestic use as identified in Water Code Section 106. Such actions create a conflict in the interpretation of water use priorities. Whatever compensation may be provided is no substitute for impacted well owners to be able to use water from their own wells for domestic uses. The adequacy of such a mitigation measure depends on whether one is the well owner/user or whether one is a project seeking to use groundwater for industrial purposes. Courts have weighed in on the adequacy of proposed groundwater mitigation measures in the Ocotillo-Coyote Wells Groundwater basin and elsewhere. For GW-2 and 3, compensation of well owners and land owners does not make the impacts less than significant for those adversely impacted!

I finally decided I had to stop further review of documents related to groundwater and water supply, because what I have learned in Imperial County gives me no confidence that proposed mitigation measures will work, be implemented, enforced, or reconsidered in a timely manner if problems arise.

The following are comments and notes made earlier in the DRECP review process. I have not had time to go back and review them for significance.

- 78. III.11.4.2 Imperial Borrego Valley Ecoregion Subarea includes majority of Imperial County, except the NE portion. V III.11-26, 27. See Tables R1.11-4b, 4a p7,8 of 50 in R1.11. And for maps, See App R1 Figs R.1.11-4a, 4b, 2a, 2b at 33 of 50 and FIGURE R1.11-2a Land Ownership in the Imperial Borrego Valley Ecoregion Subarea (App R1.11 at 33 of 50); FIGURE R1.11-2b Land Use in the Imperial Borrego Valley Ecoregion Subarea (App R1.11 at 34 of 50);
- 79. Table R1.11-4b states that there are 503,530 AC land use designated for agriculture (see p.r1.11-7 or App R1 p. 8 of 50.)
- 80. III.11.8.1 Transmission out of Plan Areas. In CA the CPUC has authority over approval of transmission and substation facilities & siting on lands under city or county jurisdictions. (V. III.11-35) However, development of such facilities on federal land requires federal agency approval since such lands are not under state jurisdiction. Federal lands such as BLM have provisions for recreation and resource management/development, and separate regulations where such activities can occur and regulations for management of conservation and resource protection. (V. III.11-35) DOD and Bureau of Reclamation have their own jurisdictions and allowed uses.

- 81. Transmission outside the plan area would likely be sited in areas depending on electricity demand. (V. III.11-36)
- 82. III.11.8.1.1 Transmission Lines. New transmission lines are expected in corridors of existing transmission lines. New ;lines means new towers and conductors in the corridor. The anticipated load centers are Los Angeles, San Diego regions and San Francisco Bay area. (V. III.11-36) To LA and SD most new transmission lines would need to cross desert and mountains between desert sites and urban uses.
- 83. III.11.8.2 BLM Land Use Plan Amendment decisions cover <u>1,057,872 AC of BLM lands within</u> <u>the CDCA</u>, but outside the Plan Area Fig I.0-2. (III.11.41). I assume this means lands such as the Jacumba Mts wilderness which is not within the DRECP Plan Area, no answer?
- 84. What is meant when DRECP says the Plan amendment process will cover 1,057,872 AC of BLM lands within the CDCA, but outside the Plan Area ? BLM manages 853,574 acres of land in Imperial County that are part of the DRECP (Table R1.11-4b Imperial and Borrego Valley Ecoregion Subarea Summary of Land Use by County (App R1 at R1.11-7, or App R1, p 8 of 50) and 323,831 acres of BLM land in Imperial County within the Cadiz Valley and Chocolate Mountains Ecoregion Subarea Summary of land use by Count (App R1 Table R1.11-3b at AppR1 p. R1-22-4 or App R1 p 5 of 50). But BLM lands within Imperial County amount to 1,244,544.67 acres according to Table 12-2 (p. 138 of 423 of Draft Baseline Environ Inventory Rpt (ICBEIR) by Chambers Group at p. 12-5). Why the differences in acres managed by BLM according to DRECP and Imperial County??? Why does the DRECP give a figure for BLM acreage that is 86,140 acres less than what Imperial County reports in its ICBEIR of 2014? 67,000 acres is a lot of land!

85. RE Section III.12.2.3.2: The CD for DRECP contains <u>NO Appendix R1.12.</u> And no Fig. R1.12-2 (see reference at III.12-5) related to the referenced farmlands data.

86. RE Table III.12-5 (III.12-5) there is a star note under the tab le that says "Not including Inyo County data", but why this note since Inyo County is not within the Imperial Borrego Valley Ecoregion? Should it be "Imperial" not Inyo? Sloppy editing or just sloppy data compilation and table creation? Did anyone proof the document before making it publicly available? This is on the same page as the reference to Figure R1.12-2 in an Appendix not provided on CDs distributed to the public. The same reference to Inyo County appears on Tables III.12-5 through 1 on pages III.12-5 through III.12-25 through 29. Each page also refers readers to Figures in the non-available Appendix R1.12.

Table of Missing DRECP Appendices DRAFT

Appendix ID	Subject matter	Where referenced in DRECP text
R1.01	Intro Environmental Setting	
R1.06	Groundwater Water supply & water quality	
R1.07	Biological Resources	
R1.09	Native American Interests	

R1_ Data Supporting Volume III R2_Data Supporting Volume IV

R1.12	Agricultural Land & production	Fig. R1.12-1 at III.12-19 (is Fig.R1.12-1 same as Fig. III.12-1?); Fig. 1.12.2 at III.12-25 etc for all Ecoregion Subareas
R1.13	BLM Lands & Realty	No figures in V. III disclose locations of projects named in tables, no reference to Appendix
R1.17	Wild horses & burros	
R1.18	Outdoor recreation	No appx
R1.20	Visual Resources	
R1.24	DOD lands and Operations	
R2.01		
R2.03	Meteorology & Climate Change	
R2.13	BLM Lands and Realty	
R2.17	Wild Horses & burros	
R2.21		
R2.22	Public Safety & services	
R2.23	Socioeconomics & Environmental Justice	
R2.24	DOD Lands and operations	
R2.25	Cumulative impacts analysis	

Attachment

additional information on valley fever

Exhibit 71. Wilken slide presentation re Coccidioidomycosis at the San Luis Obispo Solar Project site

Coccidioidomycosis - Valley fever and Cyanobacteria in the desert crusts can be neurotoxic

The links are what I have saved from when I saved copies of articles, some may no longer work, but pdf copies are available if you need them. Blue text really are links to source materials.

PBS documentary on valley fever: KVIE Health series: Deadly Dust - Valley Fever

"The growing problem of Valley Fever in California and other western states that affects 150,000 people each year." That documentary included footage and reference to the Army research I have been sharing for years related to concerns about siting renewable energy projects in arid areas known as cocci hot spots, but that others have been ignoring. See: <u>http://history.amedd.army.mil/booksdocs/wwii/PM4/CH16.Cocciodioidomycosis.htm</u>

http://www.sacbee.com/2014/08/02/6600836/drought-conditions-travelers-can.html Drought conditions, travelers can spread Valley fever into California's northern counties ... so everyone needs to be aware of valley fever symptoms if they travel.

http://medicalxpress.com/news/2014-07-dangers-diagnostic-tool-valley-fever.html for info on possible new treatment and diagnosis.

http://www.bakersfieldcalifornian.com/health/x552954128/Researchers-edging-closer-to-potential-valley-fever-cure Sept 6,2014

http://www.theatlantic.com/health/archive/2014/08/the-mysterious-fungus-infecting-the-american-southwest/375191/ The mysterious fungus infecting the Am SW. A lot of emphasis on farmworker exposures

http://www.nytimes.com/2013/07/05/health/a-disease-without-a-cure-spreads-quietly-in-the... Brown P.L. 2013 "A disease without a cure spreads quietly in the West". <u>NY Times</u> 2013/07/05. CDC calls valley fever "a silent epidemic" which caused a federal judge to order transfer of about 2,600 vulnerable inmates from two San Joaquin Valley state prisons. "Valley fever was a familiar presence during the Dust Bowl.."

http://www.bakersfieldcalifornian.com/health/x603938161/A-year-after-symposium-progress-against-valley-fever-slo w from 2014-08-03. The news is discouraging because progress is so slow and some get so ill.

Valley Fever Center for Excellence, U AZ Valley Fever (Coccidioidomycosis) Tutorial for Primary Care Physicians. 2011 (15 pgs) on line at www.vfce.arizona.edu

Cal Med Schools free CME for physician education found at <u>https://cmecalifornia.com/Activity/1109096/Detail.aspx</u> Public can do this also for no CME.

Cal OSHA info for employers & employees http://www.dir.ca.gov/dosh/valley-fever-home.html

CDC info re cocci http://www.cdc.gov/fungal/coccidioidomycosis/ Fungal pneumonia: a silent epidemic

http://www.cdph.ca.gov/HealthInfo/discond/Pages/Coccidioidomycosis.aspx

http://www.cdc.gov/fungal/diseases/coccidioidomycosis/information.html

From CDC 2012: http://www.cdc.gov/fungal/diseases/coccidioidomycosis/symptoms.html

Symptoms of coccidioidomycosis include:

• Fever

- Cough
- HeadacheMuscle aches
- Rash on upper trunk or extremities
- Joint pain in the knees or ankles

Symptoms of advanced coccidioidomycosis include:

- Skin lesions
- Chronic pneumonia
- Meningitis
 Bone or joint infection

Symptoms of coccidioidomycosis may appear between 1 and 3 weeks after exposure to the fungus. Some patients have reported having symptoms for 6 months or longer, especially if the infection is not diagnosed right away. If your symptoms last for more than a week, contact your healthcare provider

Preventing Work-Place Valley Fever 2013 <u>www.cdph.ca.gov/programs/ohb</u> with links to many articles & fact sheets. http://www.cdph.ca.gov/programs/ohb/Pages/Cocci.aspx http://www.cdph.ca.gov/programs/hesis/Documents/CocciFact.pdf

 $\label{eq:http://www.nytimes.com/2013/07/05/health/a-disease-without-a-cure-spreads-quietly-in-the-west.html?pagewanted=all&module=Search&mabReward=relbias%3Ar&_r=0$

And if you think of valley fever in only the Southwest take a look at the Figure 2 for cocci distribution in persons 65 or older at p. 1667 in DOI: <u>http://dx.doi.org/10.3201/eid1709.101987</u> Geographic distribution of Endemic fungal infections among older persons, US. 2011 EID v. 17, No.9 First author is from UAlabama.

If you live, travel or work in or near desert or arid areas the following cautions are important:

"At the dawn of a new day it can be windy and hazy in the desert, with air currents lifting dust into the air. The cocci spores are alive and well in their endemic areas at this time of the day. Even if you are in the city or miles away from the open desert, you can inhale the spores that cause Valley Fever. You don't have to be in the desert itself."

"However, if you are in an area where construction is happening (such as new roads, office buildings, housing, etc.), working in the ground itself (gardening, playing close to the ground, crawling, etc.) the danger increases. Automobiles passing by, machinery in use, or any other activity that can lift dust into the air can cause a case of Valley Fever if cocci spores are present and inhaled."

"On a windy, hazy day in the desert, city, or even near your home, you should take precautions. Instead of golfing or hiking on a windy day, do indoor sports or other activities to lessen your risk of contracting Valley Fever. Avoid spending the day outdoors because the possibility of contracting a Valley Fever infection is dramatically increased due to the soil disturbances the wind can cause."

Night "This is one of the most dangerous scenarios, along with the complete fall of night when the wind and dust are blowing. We suggest that you avoid going outside on a windy night. Even a simple trip to the supermarket might bring cocci to your lungs when it could have been avoided. The lack of UV and presence of wind can allow cocci spores to travel hundreds of miles."

(http://www.valleyfeversurvivor.com/dawndusk.html)

http://www.newyorker.com/reporting/2014/01/20/140120fa_fact_goodyear?printable=true. "Death Dust: The valley fever menace." The article describes the 1977 dust storm in Bakersfield that carried the dust more than 400 miles to Sacramento where more than 100 people got valley fever. CDPH also stated that there were cases in San Francisco from that dust storm. Also mentions what military knew about cocci and cocci hot spots during and after WW II, in addition to problems related to solar development in Antelope Valley and San Luis Obispo County. The article noted that the "highest rate of infection is in Antelope Valley, a rapidly developing outpost of the [Los Angeles] county" ... where "the number of cases there has increased five hundred and forty-five percent."

"The elderly and the immune -compromised–including pregnant women–are most susceptible; for unknown reasons, otherwise healthy African -Americans and Filipinos are disproportionately vulnerable to severe and life-threatening forms of the disease." (Goodyear p. 4 of 23) "Hispanics and African/Americans in California experienced a disproportionately higher frequency of disease compared to other racial/ethnic groups." (Hector 2011. "The public health impact of Coccidioidomycosis in Arizona and California". *Int. J. Environ. Res. Public Health* 2011, *8*, 1150-1173 at p. 1150, <u>http://dx.doi.org/10.3390/ijerph8041150</u>.) And: "Persons at increased risk of disseminated coccidioidomycosis include immunocompromised persons, e.g., HIV/AIDS, diabetics, pregnant women [8,9] and persons of certain race/ethnicities, particularly Blacks and Filipinos [10,11]." (Hector 2011 at 1151.) "The underdiagnosis and misdiagnosis of coccidioidomycosis represent a public health concern as patients with this disease often incur weeks to months of disability and time away from work. These illnesses also utilize significant amounts of medical resources, including hospitalizations, resulting in a tremendous economic burden ..." (Hector 2011 at 1155) Cocci cases have been reported from all but five counties in CA. (Hector at 1162) As many as 30% of cases of community acquired pneumonia (CAP) are likely to be from coccidioidomycosis and early diagnosis is often missed. (Hector at 1163)

Hopensthal 2013 "Coccidioidomycosis treatment and management" at MedScape reference online: <u>http://emedicine.medscape.com/article/215978-treatment</u> provides detailed discussion of vearious treatment propocols, including for different risk groups. Hospenthal 2011" Coccidioidomycosis" at <u>http://emedicine.medscape.com/article/215978-overview</u> provided detailed discussion of the disease and identified concerns about the massive migration to Sunbelt states and "a growing population of individuals who are unusually susceptible to the most serious consequences of infection, due to advanced age or immunocompromise."

Is cocci or valley fever a serious health issue? Military and international health organizations thought so. Why? See Smith1958 in http://history.amedd.army.mil/booksdocs/wwii/PM4/CH16.Cocciodioidomycosis.htm

"Until last year, *C. immitis* was listed as a Select Agent. After culturing it, lab technicians had seven days to report to the Department of Homeland Security that it had been destroyed." (New Yorker article p. 10 of 13) Cocci research requires a Biosafety Level 3 lab to protect researchers.

Arizona's Dr. Galgiani, a valley fever expert, stated that: "In the nineteen-fifties, both the U.S. and the Russians had bio-warfare programs using cocci," he said. "Generals can't control agents that rely on air currents to disperse them, and it was difficult to use the vector precisely, so it fell out of favor. But terrorists don't care about that stuff—all they care about is perception. A single cell can cause disease, and you can genetically modify it to make it more powerful." "(New Yorker article p. 10 of 13)

A "select agent" is a microbial or other biological agent or toxin that could be used as a biological weapon "to produce death, temporary incapacitation, or permanent harm to humans or animals or plants for a military objective". Indeed, in Table 1.1 "Biological Agents cited as Possible Weapons for Use Against Humans" *C. immitis* was included as the only fungus in list of biological agents identified by the UN in 1969, by WHO in 1970, by NATO in 1996. (Guillemin J, 2005. <u>Biological Weapons: From the Invention of State-Sponsored Programs to Contemporary Bioterrorism.</u> Columbia at p. 2, 3, 31, 33.)

See also Sinski 1963 for some experiments re cocci at <u>www.dtic.mil/cgi-bin/GetTRDoc?AD=AD0416146</u> <u>http://www.usatoday.com/story/news/nation/2014/08/17/reports-of-incidents-at-bioterror-select-agent-labs/141404</u> <u>83</u>/ Hundreds of bioterror incidents cloaked in secrecy, but this is the tip of the iceberg so we should care.

Indeed, investigative journalists for the NY Times state that: "The army also studied the threat of enemies wielding a speculative class of munitions known as ethnic weapons – germs that selectively target particular races. One military worry centered on Coccidioides immitis, a fungus that causes fever, cough, and chills and, if left untreated, kills blacks far more often than whites. The military feared that it would be used against bases...." (Miller G., Engelberg, Broad. 2001. <u>Germs: Biological Weapons and America's Secret War</u>. Simon & Schuster, NY p. 42)

See also: Dixon, D.M. 2001. "*Coccidioides immitis* as a Select Agent of bioterrorism." J. Applied Microbiology 2001, v. 91, 602-605. Cocci immitis is a Biosafety level 3 fungus and the only fungus on the select agent list.

"Coccidioidomycosis is also a threat to the US military. It can be considered an endemic threat... 'Coccidioidomycosis: a persistent threat to deployed populations' (Rush et al. 1993.[Aviation, Space and Environmental Medicine 64, 653-657.]). the threat can be particularly insidious when immunologically naive troops move into the endemic regions of the US for training and then are deployed to distant sites where the disease can manifest after leaving the endemic area, and may not be readily considered in the differential diagnosis." (Dixon 2001 at p.602)

"The report, 'Coccidioidomycosis among Militaty Personnel in southern California' provided a useful immunological natural history study in this regard (Hooper et. Al. 1980). Of 1438 troops studied, 21% were skin test positive on initial testing. Skin test conversion rates were followed from this baseline; the conversion rate was 25.4% over six to 8 months. These well-characterized military studies are excellent examples of what can happen when any immunologically naive population moves into the endemic area." (Dixon 2001 p. 602)

Hooper, R. Et al. 1980. "Coccidioidomycosis among Military Personnel in Southern California". <u>Military Medicine</u> 46 (10) 620-623. ***

MMWR March 29, 2013 V. 62, No. 12 (<u>http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6212a1.htm</u>) Increase in reported coccidioidomycosis - US 1998-2011)

http://www.pbs.org/newshour/bb/fungal-disease-proves-tricky-diagnose/ July 6, 2014

Coccidioidomycosis as common cause of Community Acquired Pneumonia 2006 Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 12, No. 6, June 2006 p 958- 962 by Valdivia et al, UAZ College of medicine (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3373055/)

http://www.bbc.co.uk/news/magazine-23166839?print=true BBC News - Valley fever: A lethal illness in the dust 16

July 2013.

http://blogs.kqed.org/stateofhealth/2013/03/29/valley-fever-cases-skyrocketing-says-cdc/ or http://www.reportingonhealth.org/valleyfever/valley-fever-cases-skyrocketings-says-cdc

http://www.wunderground.com/news/valley-fever-20130506 "Valley Fever Hits Thousands in Dry West Farmland" | Weather Underground 5/6/2013 Article includes photos of intense dust clouds called "haboobs" in Arizona. It was the haboob in 1977 that took valley fever from Bakersfield area to Sacramento. I do not recall any haboobs in Ocotillo since 1977 prior to the construction & roads dozing up desert crust for Ocotillo Wind Energy Project in 2012. Now we have them and they roll from Ocotillo area into Imperial Valley cities to east.

Even a gorilla in the LA zoo has valley fever and will be on antifungals for the rest of his life, at a potential cost of up to \$17,000.month. One assumes that the gorilla has not traveled outside LA recently. http://www.latimes.com/science/la-me-0620-gorilla-20140620-story.html So what does this say about potential exposures to residents of LA?

Wilken, Jason, PhD, CDPH 2014 presentation to Imperial County Environmental Justice Task Force, 44 slides: "Coccidioidomycosis Among Solar Power Farm Construction Workers – California 2011-2013"

There were 120 employers, with unknown total employees. 3,638 employees had known addresses, with 60% residing outside San Luis Obispo County, and 21% outside CA. Of these, there were only 1,192 employees with known start and finish dates of employment. (Wilken, Slide 28 of 44) Of those there were 32 cases of VF for employees of two employers at Solar Farm A. (Wilken, Slide 29 of 44) Patient Ages 21-63 years, males 93%, white 63%, Hispanic 10%, other 13%, of males 60% had history of ever smoking. (Wilken, Slide 31 of 44) 40% visited ER, 85% missed work time, "time to symptoms from first work day 10-638. (Wilken, Slide 32 of 44) High dust levels every day reported 76% of time working outdoors. (Wilken, Slide 34 of 44)

CDPH Recommendations to Employers : Minimize dust generation cover excavated soil Increase watering frequency and water truck capacity when dust is excessive. (Wilken slide) Stabilize disturbed soil areas and Establish criteria for stopping work

CDPH Reduce employee exposure Provide HEPA-filtered, air conditioned, enclosed cabs Provide NIOSHapproved respiratory protection for all employees who work outside Ensure prompt reporting of cases to appropriate agencies. (Wilken, Slide 36 of 44)

The SLO Solar Farm Cocci outbreak: 14 of 43 patients resided in San Luis Obispo County; 19 patients resided in other counties in CA; 10 other patients came from NV, NM, TX, WI, IL, and GA. (Wilken, Slide 37-39 of 44) CDPH did not consider whether or not there were any cases of cocci for exposures of public not employed at solar farms (answer to question following presentation).

CDPH studies of cocci reveal that for occupational exposure, workers do not have to engage in soil disruptive work. Cases are reported by county where patient resides, not where infection occurred. (Wilken, Slide 41of 44)

http://www.cdph.ca.gov/programs/hesis/documents/coccifact.pdf

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 19, No. 10, October 2013" Cocci- associated hospitalizations, CA, USA 2000-2011." By CDPH staff. Or DOI: <u>http://dx.doi.org/10.3201/eid1910.130427</u> For this period there were 15,747 patients hospitalized at a cost in excess of \$2 billion in hospital charges. "In California, the increasing healthand cost-related effects of coccidioidomycosis-associated hospitalizations are a major public health challenge." "Populations at particular risk for severe disease include African Americans, immunocompromised persons, and <u>persons >65 years of age (2,11)</u>." (Emphasis added.) Further complicating the valley fever problem is the fact that "Of the 33 California correctional and rehabilitation facilities for adults, 11 are located in the [cocci] endemic region" and health care for valley fever in prisons exceeds \$23 million/year. The final paragraph of this article concludes that: "The increasing health and financial toll of coccidioidomycosis-associated hospitalizations in California are a major public health challenge. Efforts are needed to reduce the incidence of disease, yet options for the prevention of coccidioidomycosis are limited. Although a vaccine is not currently available, vaccine research is under way (*37*). Early diagnosis, close follow up, and appropriate treatment of patients at risk for severe or disseminated disease may decrease the number of long-term illnesses and deaths. Thus, <u>efforts should be</u> made to increase disease awareness and promote early recognition among health care providers and the public. In addition, prevention messages on how to minimize or avoid breathing in dusty air should be communicated more widely to persons living in or traveling to areas where *Coccidioides* fungi are endemic, particularly to persons at risk for severe disease and hospitalization." (EID 2013 at p. 1596) (emphasis added.)

The above information is critically important and must be made a part of discussions of **mitigation and monitoring** related to any and all renewable energy projects in the Southwest and education related to health risks, precautions, work stoppages, and health reporting **must be included as conditions for any Conditional Use Permit related to renewable energy project approvals**. (Suggestion from Katie Turner, attorney in Imperial County Counsel's Office during phone conversation.)

According to info from CDC on 7/27/2014, valley fever health risks are still an issue in **CA state prisons**. See: <u>http://www.californiahealthline.org/articles/2014/7/28/cdc-says-calif-inmates-should-be--tested-for-valley-fever-immu</u> <u>nity</u> <u>http://www.correctionalnews.com/articles/2014/08/20/california-inmates-sue-state-over-valley-fever-again</u>

http://www.prnewswire.com/news-releases/feldman--wallach-federal-court-allows-california-class-action-to-proce ed-with-race-based-claims-on-behalf-of-inmates-infected-by-valley-fever-272337661.html These 3 recent articles reveal that valley fever in prisons in CA remains an expensive public health and legal cost for taxpayers.

http://www.courthousenews.com/2015/01/13/90-000-california-inmates-tested-for-valley-fever.htm</u>"Those particularly at risk include African Americans, Filipinos, people older than 60, people with weakened immune systems, and diabetics." Cost \$60/skin test/inmate, so why is it too expensive to test ER patients w community acquired pneumonia in Imperial County?

http://wwwnc.cdc.gov/eid/article/21/1/pdfs/14-0836.pdf Wheeler c. ete al 2015. Rates and risk factors for Coccidioidomycosis among prison inmates in CA, 2011. Emerging Infectious Diseases v. 21 No.1 Jan 2015 Diabetes is a risk factor for severe pulmonary cocci, being African American a risk factor for disseminated disease.

http://www.motherjones.com/environment/2015/01/valley-fever-california-central-valley-prison Ferry, D. 2015-01-30. How the government put tens of thousands of people at risk of a deadly disease. If it killed politicians instead of prisoners, this illness would be national enemy #1. Mother Jones

And, if inmates are released ill and without potential employment, who will cover the costs for medical treatment and requirements for food, housing and medical care for former inmates and dependent family members?

SUGGESTION: It would be helpful if CDC and CDPH initiated a program for reporting cocci infections based on likely location/ county where exposure might have led to disease, rather than merely keeping statistics based on county of residence of patients. Think how that would have changed public perceptions of risks associated with the solar project sites in San Luis Obispo County!

http://www.reportingonhealth.org/valleyfever/faces-and-voices-valley-fever Faces and voices of valley fever 2012

Though there is still no known cure for VF, there is now more hope for a cure. See Stephanie Innes 2014-10-02 "FDA fast-tracks UA-developed valley fever drug" in Tuscon.com, Arizona Daily Star, re the antifungal drug nikkomyciin Z (NikZ) for which a clinical trial is scheduled to begin in 2015.

http://tucson.com/news/local/fda-fast-tracks-ua-developed-valley-fever-drug/article_92270621-17b2-5e33-a88c-9c07f 6683b24.html

http://www.wildcat.arizona.edu/article/2014/10/professor-works-with-new-valley-fever-drug

http://www.azfamily.com/news/health/Valley-fever-drug-fast-tracked-by-FDA-278415591.html#

There are scores of other important articles and research on valley fever in southern CA.

In addition to concerns about valley fever, construction and activities that result in generation of lots of blowing dust and sand can contribute to problems of asthma and allergies in sensitive individuals when exposed.

Cyanobacteria, the blue-green algae of the desert crusts, another public health concern related to delayed neurodegenerative diseases such as ALS, Parkinson's disease, and dementia related to desert dust neurotoxins

Cyanobacteria are well known to produce bioactive compounds such as toxins that may bioaccumulate and are associated with many cases of serious or lethal health effects. (Jonasson 2008 A novel cyanobacterial toxin (BMAA) with potential neurodegenerative effects." Plant biotechnology 25:227-232. P. 227 https://www.jstage.jst.go.jp/article/plantbiotechnology/25/3/25_3_227/_pdf

https://www.soils.org/files/publications/sssaj/abstracts/76-5/s12-0021-5-2012-7-17.pdf https://www.soils.org/story/2012/jul/wed/sneak-peek-new-research-reveals-desert-ecosystems-dep.. Re biological crusts https://www.soils.org/newsroom/releases/2012/0719/548/

Holtcamp. 2012 "Was Lou Gehrig's ALS caused by drinking water? This is an article about cyanobacteria and cyanotoxins neurotoxic effects on the motor nervous system and the work of Paul Cox and others. http://www.alternet.org/story/153965/

Cox. PA et al. 2009. "Cyanobacteria and BMAA exposure from desert dust: A possible link to sporadic ALS among Gulf War veterans." Amyotrophic Lateral Sclerosis 2009; Supplement 2 : 109-117) http://tidenetwork.org/wp-content/uploads/2013/11/Metcalf-1.pdf

For the lay public see:

"New findings suggest a possible link between dust-dwelling bacterial toxins and an elevated incidence of ALS (amyotrophic lateral sclerosis) in Gulf War veterans. The study blames cyanobacteria, microorganisms that live in desert sands and which can be inhaled when they're kicked up in dust, such as when a convoy of military vehicles rumbles by Wahl. 2009. "ALS Research: Poison Dirt? Toxic desert dust" may be why military personnel serving in the 1990-1991 Gulf War experienced abnormally high rates of ALS, new findings suggest" 12/09/2009 Quest Magazine online http://quest.mda.org/print/7901

"Cyanobacteria are common throughout the world in salt water, fresh water and soil. The new findings generally support the theory that ALS may be caused by a combination of genetic predisposition and environmental exposures." (Wahl p 2) "This isn't the first time that cyanobacteria have been suspected of causing ALS. In spring 2009, when media reports raised the question of a possible link between ALS and living near Lake Mascoma in Western New Hampshire, researchers also suggested cyanobacteria might be responsible, although they were far from certain." (Wahl p 2,3)[EH has relatives that live near Lake Mascoma and knows MDs in NH are concerned.]

Neurotoxins called BMAA and DAB are associated with cyanobacteria in desert crusts. When the crusts are disturbed by military or construction activities it can produce dusts containing neurotoxins. And ""If dust containing cyanobacteria is inhaled," the investigators write, "significant exposure to BMAA and other cyanotoxins may occur. We suggest that inhalation of BMAA, DAB, and other aerosolized cyanotoxins may constitute a significant risk factor for the development of ALS and other neurodegenerative diseases."" (Wahl p, 3) "In a general way, the proposed link between cyanobacterial exposures and later development of ALS supports the idea that sporadic (noninherited) cases of ALS may result from a combination of genetic predisposition and environmental exposures."

See Cox, et al. 2009 Cyanobacteria and BMAA exposure from desert dust: A possible link to sporadic ALS among Gulf War veterans. *(Amyotrophic Lateral Sclerosis . 2009; Supplement 2 109-117).*

<u>http://tidenetwork.org/wp-content/uploads/2013/11/Metcalf-1.pdf</u> Among the conclusions is found the following: "Although cyanobacteria and cyanotoxins were considered by military as biological warfare weapons in the Gulf, there has been no previous consideration of cyanobacterial exposures as a possible etiological factor in the time-limited outbreak of ALS among deployed military personnel." (Cox at p. 113) Not only is inhalation of cyanotoxins in dust , but ingestion through water contaminated with cyanotoxins from disturbed biological desert crusts can lead to increased incidences of neurodegenerative diseases such as ALS and Parkinson's disease in exposed individuals. (Cox 114-115). In Guam cyanotoxins impacts on ALS/Parkinson's dementia complex had a lag time of years to decades from last exposures. (Cox 115) Should we be concerned knowing that "there is "increasing application of biosensor technology by military organizations - with cyanobacteria and cyanotoxins considered as potential biowarfare agents– it is important that environmental exposures be carefully monitored so that they can be distinguished from anthropogenic assaults." (Cox 116) The recommended mitigation measures "include avoidance of vehicular traffic in areas of cyanobacterial crusts, and use of dust masks or aspirators when dust from cyanobacterial crusts cannot be avoided." (Cox 116)

So why does EH have concerns about neurodegenerative effects of cyanobacteria and cyanotoxins? Her husband died from complications of Parkinson's Disease after living in Imperial County for 42 years, with 35 of those years in the Yuha Desert of SW Imperial County, where he would have been exposed to whatever was in the dusts from desert crusts. What are downwind communities being exposed to once the desert crusts are disturbed and clouds of dust and sand are blown from previously undisturbed renewable energy project sites on public lands?

Following is from a letter EH sent to BLM's Tom Zale 2/21/2012 related to health concerns associated with proposed Ocotillo Wind Energy Project which now surrounds the community of Ocotillo in SW Imperial County.

In early 2012 there have been published articles in newspapers referring to medical journal articles describing incidences of neurodegenerative diseases such as Lou Gehrig's Disease (ALS), Alzheimer's Disease (AD) and Parkinson's Disease (PD) following exposure of deployed military members to dust containing cyanobacteria and other materials in Gulf Wars and Iraq and Afghanistan. Some research is about a decade old, but only recently being discussed in widely circulated newspapers and magazines.

Please copy the following to see the article in USA Today. "Navy researcher links toxins in war-zone dust to ailments." Kennedy, K. 2011-05-11 USAToday. http://www.usatoday.com/cleanprint/?unique=1329461935825 or http://usatoday30.usatoday.com/news/military/2011-05-11-Iraq-Afghanistan-dust-soldiers-illnesses_n.htm and its accompanying video. http://bcove.me/rz7zs7z6 which shows overwhelming very serious health problems from exposures to blowing dust.

Cyanobacteria are in the upper mm of desert souls worldwide. A brief discussion of the desert crusts and cyanobacteria by USGS's Jayne Belnap is found at http://geochange.er.usgs.gov/sw/impacts/biology/crypto/

Belnap states that: Cryptobiotic crusts increase the stability of otherwise easily eroded soils, increase water infiltration in regions that receive little precipitation, and increase fertility in soils often limited in essential nutrients such as nitrogen and carbon (Harper and Marble, 1988; Johansen, 1993; Metting, 1991; Belnap and Gardner, 1993; Belnap, 1994; Williams et al., 1995). (Belnap, USGS p 2)

Cryptobiotic soil crusts are highly susceptible to soil-surface disturbing activities such as trampling by hooves or feet, or driving of vehicles off road, construction activities including road construction/grading. (Belnap, USGS p.2)

Because desert crusts are easily disturbed the "underlying soils are left vulnerable to both wind and water erosion for at least 20 years after disturbance (Belnap and Gillette, 1997)". This loss of soil and fertility is considered irreversible because desert soils can take 5,000 to 10,000 years to form in arid areas.

"Cyanobacteria can generate molecules hazardous to human health." (Cox, et al. 2009 p. 109) Cyanobacteria have been found in the fossil record for more than 2.2 billion years. They have been around long enough to adapt to the most extreme of environments and are important in both the nitrogen and carbon cycles in the desert environment. They can be found at the extreme limits of life. Many taxa of cyanobacteria are considered as "extremophiles" because they are able to occupy and survive in extreme environments including extreme temperatures, salinity and aridity. And because they can survive at the extremes, they have been important in stabilizing desert soils wherever they occur. (Cox, et al. 2009 p. 110.)

Cyanobacteria are known to produce three types of toxins, neurotoxins, hepatotoxins and irritant toxins. (Cox, et al. 2009 p. 110.) The majority of cyanobacteria produce toxins that produce acute health effects. Among other things, toxins are known to inhibit acetylcholinesterase, inhibit protein phosphotase, promote tumors and cause gastrointestinal problems. In addition, long term exposure to low levels of cyanobacterial toxins has also been found to lead to a higher incidence of primary liver cancer and progressive neurodegenerative diseases like Lou Gehrig's disease (ALS). (Cox, et al. 2009 p. 110.) Such exposure to cyanobacteria in desert dusts has been linked with higher than expected ALS in young, previously healthy military persons deployed in the first Gulf War and exposed to cyanobacteria in the desert crusts that were disturbed by military vehicles. Authors suggest that there might be a long term increase in neurodegenerative diseases such as ALS, PD and Alzheimer's in the future as the slow release of neurotoxins in the brain result in motor neuron death.. (Cox, et al. 2009 p. 113-115.)

Cox et al. (2009 p. 109) found that the dried desert crusts and mats (in the Gulf region) contained neurotoxic

cyanobacterial toxins including BMAA and DAB. The abstract concludes with the following text: "If dust containing cyanobacteria is inhaled, significant exposure to BMAA and other cyanotoxins may occur. We suggest that inhalation of BMAA, DAB, and other aerosolized cyanotoxins may constitute a significant risk factor for the development of ALS and other neurodegenerative diseases." (Cox et al. (2009 p. 109)

A study by Pablo et al. [34] detected high concentrations of BMAA in 49 out of 50 postmortem brain samples from ALS and AD sufferers in North America, and importantly, no BMAA was detected in healthy controls. This provided further evidence that bioaccumulation of BMAA in neurodegenerative disease sufferers may be a global concern. (Chiu et al 2011, p. 3731)

Because inhalation of cyanotoxins from desert crusts may cause neurodegenerative diseases, and because cyanobacteria and cyanotoxins have been considered as possible bioweapons, (Cox, PA. et al. 2009. P. 116) and because cyanobacteria are found in all desert crusts, including in the California deserts, serious consideration should be given to the potential for significant serious long term debilitating health problems of sensitive persons downwind of the blowing dust from disturbed desert soils if industrial scale wind or solar energy projects are constructed on desert public lands managed by BLM.

This should be especially important in a location such as Imperial County where residents are already exposed to the drift of airborne agricultural chemicals such as pesticides and herbicides that are sprayed from low flying aircraft over agricultural fields. Imperial County has a "Right to Farm Ordinance", which essentially advises property owners about agricultural practices, many of which have been associated with adverse health impacts such as asthma, allergies, PD in publications for many years. One must ask whether and/or to what extent might the inhalation of airborne cyanobaterial toxins, other soil bacteria and fungi co-contribute to health problems both locally in downwind communities and hundreds of miles away as the dust is transported off site by winds?

Indeed, an article from Reuters suggests health problems exacerbated by transport of dust from distant desert lands when it states that: Dust blown from faraway deserts may accumulate in the air to levels great enough to contribute to children's asthma attacks, a new study suggests." (Norton 2010.)

http://www.reuters.com/assets/print?aid=USTRE6754MS20100806 So what might happen if that desert dust also carries fungal spores that cause Valley fever or cyanobacterial toxins from the desert crust?

Jayne Belnap USGS 2013 Desert crusts. http://geochange.er.usgs.gov/sw/impacts/biology/crypto/ Cryptobiotic soils: holding the place in place.

Chiu, A.S. et al. 2011. Does -Amino- -methylaminopropionic Acid (BMAA) Play a Role in Neurodegeneration? Int. J. Environ. Res. Public Health 2011, 8, 3728-3746 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3194113/

Cox, PA. et al. 2009. Cyanobacteria and BMAA exposure from desert dust: A possible link to sporadic ALS among Gulf War veterans. Amyotrophic Lateral Sclerosis, Supplement 2 109-117. http://tidenetwork.org/wp-content/uploads/2013/11/Metcalf-1.pdf

Kennedy, K. 2011-05-11 USAToday. "Navy researcher links toxins in war-zone dust to ailments."

http://www.usatoday.com/news/military/2011-05-11-Iraq-Afghanistan-dust-soldiers-illnesses_n.htm and its accompanying video. http://bcove.me/rz7zs7z6

https://www.youtube.com/watch?v=7jWi6WQQ9wo TED talk by Dr. Paul Cox re cyanobacteria & ALS

Holtcamp, W. 2012 "The emerging science of BMAA. Do Cyanobacteria contribute to neurodegenerative disease?" Environmental Health Perspectives Vol. 20 No. 3 pp A110-A116. <u>http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3295368/pdf/ehp.120-a110.pdf</u> Holtcamp reports that Cox found "that 95% of genera of cyanobacteria tested produced BMAA." (p. A113.)

Additional refs are available on cyanobacteria, desert crusts and links to neurodegenerative diseases.

Dangers in desert dust - Coccidioidomycosis, cyanobacterial toxins & concerns re industrial scale renewable energy projects EH 2015/2 DRECP Additional information 8 pages Exhibit 73

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2/23/2015

California Energy Commission Dockets Office, MS - 4 Docket No. 09 - RENEW EO - 01 1516 Ninth Street Sacramento, CA 95814 - 5512 docket@energy.state.ca.us

Re: Comments on the Draft Desert Renewable Energy Conservation Plan (DRECP), Proposed Plan Amendments, and Environmental Impact Statement and Environmental Impact Report (EIS/R)

To whom it concerns:

On behalf of the Center for Biological Diversity (Center) and our over 825,000 members and on-line activists, we are writing to provide comments on the state and federal agencies draft proposed Desert Renewable Energy Conservation Plan (DRECP) and the Environmental Impact Statement and Environmental Impact Report (EIS/R). The proposed project covers over 22.5 million of acres of public and private lands in Kern, Los Angeles, San Bernardino, Inyo, Riverside, Imperial, and San Diego Counties, in California. The current proposal includes: a Bureau of Land Management ("BLM") proposal to amendment to the California Desert Conservation Area Plan (CDCA Plan) as well as a draft Natural Communities Conservation Plan (NCCP) proposed to be issued by the California Department of Fish & Wildlife ("CDFW") to the California Energy Commission (CEC), State Lands Commission (SLC) and the California Public Utilities Commission (CPUC); and a draft General Conservation Plan (GCP) (in lieu of a Habitat Conservation Plan (HCP)) proposed to be issued by the U.S. Fish and Wildlife Service to those same state agencies.

Many of the Center's members and on-line activists reside in and recreate in southern California, including in the counties that will be affected by the proposed DRECP. The Center's members and staff regularly visit the desert lands in California for purposes of research, photography, hiking, enjoyment of desert areas and other recreational, scientific, and educational activities.

The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, and to assist California in meeting emission reductions goals. The Center strongly supports the development of renewable energy production. However, like any project, proposed solar, wind and geothermal power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species *Alaska* • *Arizona* • *California* • *Florida* • *Minnesota* • *New Mexico* • *New York* • *Oregon* • *Washington* • *Washington*, *DC* and habitats, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

In that context, a sound and effective DRECP has the opportunity to secure robust conservation through landscape level planning for renewable energy in the California deserts that avoids sensitive habitats. While some amount of utility-scale renewable energy projects can be accommodated on both private and public lands in the planning area, the development focus areas ("DFAs") must be clearly defined and carefully designed in areas that avoid degrading and destroying what remains of our relatively intact desert landscape and its associated biodiversity, scarce water resources, and other rural values.

Unfortunately, the draft plan does not meet the stated goals. Instead, the draft plan provides confusing and inaccurate information about the proposal and the likely impacts, fails to improve siting and permitting for renewable energy projects, fails to acknowledge the potential for distributed renewable energy to contribute to plan goals on private lands, rooftops, and parking lots in the planning area, and provides little more than empty promises of future conservation improvements on public lands that are unfunded and unlikely to occur. Moreover, the Center is shocked that BLM is inappropriately attempting to use this renewable energy planning process to completely restructure the CDCA Plan and lock-in recreation designations on over 3 million acres of public lands without any analysis of the impacts motorized recreation has on covered species and without any attempt to minimize those impacts – this proposal is far outside the scope and stated goals and objectives the plan amendment process.

The draft proposed plan elements and the alternatives are not adequately identified or explained in the documents, no clear baseline is provided, and proposed conservation rollbacks are not clearly disclosed. Accordingly, the NEPA and CEQA analyses of these proposals are flawed from the outset. The draft DRECP also fails to appropriately identify all of the conservation needs for listed species taking into account species recovery and thus fails the most basic requirements under the NCCP or ESA standards for NCCPs and HCPs/GCP. The draft DRECP also fails to adequately analyze the likely impacts from renewable energy development and other threats to species (including off-road vehicle use within the plan area). As a result, the proposed DRECP cannot go forward without major revisions and additional analysis.

Given the significant shortcomings of the environmental review for the draft plan amendments, GCP/HCP and NCCP, and the inclusion of sweeping changes to the CDCA plan and motorized recreation designations far outside the scope of the proposed DRECP plan amendment, the draft DRECP cannot be adopted as proposed. The Center urges the agencies to reconsider the scope of the proposal and provides some suggestions for moving forward with this important planning process in a revised proposal. Because many of the inadequacies in the draft DRECP affect compliance with multiple legal standards, the issues cut across the draft DRECP and our comments highlight only some of the insufficiencies related to each legal standard. These and other issues are discussed below in detail. *Comments Submitted By the Center Before the Draft DRECP Was Issued*: As a stakeholder in the initial process to develop the DRECP, the Center provided input at meetings and workshops as well as in written comments. Over the past six years the Center has spent innumerable hours of staff time reviewing documents, meeting with key stakeholders and agency staff, participating in workshops, and drafting numerous joint and separate comments on this process including comments directed to the DRECP as well as to BLM, FWS, and state agencies including, but not limited to:

- Participated in numerous stakeholder and workgroup meetings from 2010 to the present;
- Presented at Independent Science Advisors meeting on April 22, 2010 and participated in ISA workshop in June, 2012;
- Participated in CEC workshop on durability;
- Submitted Scoping comments dated 9-12-2011;
- Submitted comments on the Draft Biological Goals and Objectives dated March 21, 2012
- Submitted comments on the 2012 DRECP Development Scenarios and the Methodology Memorandum on 5-22-12;
- Submitted comments on initial alternatives briefing materials 8-8-2012 (jointly with The Wildlands Conservancy);
- Submitted comments on "December draft maps";
- Submitted a joint letter on wind issues (http://www.drecp.org/documents/docs/comments-general/2012-08-24_Environmental_NGO_Wind_Energy_Recommendations.pdf);
- Submitted NLCS letter regarding current status of NLCS lands within the CDCA and baseline issues (<u>http://www.drecp.org/documents/docs/comments-general/2014-04-08 Center for Biological Diversity ltr on NLCS.pdf</u>);
- Submitted joint comments with other conservation organizations on draft Biological Goals and Objectives (BGOs) representing the first subset of "driver species" in mid-May 2013
- Submitted joint comments with other conservation organizations on draft Biological Goals and Objectives (BGOs) representing the second subset of "driver species" on July 2, 2013

In reviewing the draft DRECP, it is notable that many of our earlier comments appear to have been completely ignored by the agencies. As just one example, in response to the so-called "December draft maps" the Center pointed out conflicts between areas proposed for development and the Desert Tortoise Research Natural Areas—rather than address that issue and revise the proposal, the draft DRECP continues to proposed designations that conflict with conservation of this critical area. Similarly, in those same comments, the Center raised issues with the proposal to utilize "recreation area" designations to limit renewable energy development and ostensibly to provide conservation—as we noted then, and stress again in these comments below, in many cases recreation, particularly motorized recreation, is directly at odds with conservation. Nonetheless, the draft DRECP contains sweeping new recreation area designations on over 3 million acres of public land without any analysis of the impact this

proposal would have on species conservation or other desert resources. And another example, the Center provided a detailed letter regarding the legal issues related to the National Landscape Conservation ("NLCS") lands within the CDCA and how these were identified in the baseline for analysis—those comments also appear to have been completely ignored. We hope and expect that in reviewing and responding to comments on the draft DRECP the agencies take more time to fully consider comments from the Center and other members of the public, address our comments and make changes in the proposal.

Comments Already Submitted By the Center On the Draft DRECP EIR/EIS: The Center has also already provided comments specific to the Draft DRECP EIR/EIS including:

- Joint comments regarding the need for analysis of an alternative that includes DG (<u>http://www.drecp.org/draftdrecp/comments/LCunningham_KEmmerich_BPowers_SBowers_comments_2015-01-30.pdf</u>)
- joint comments with members of the California Desert Renewable Energy Working Group regarding the process and obvious deficiencies in the draft DRECP (http://www.drecp.org/draftdrecp/comments/CDREWG to CEC_BLM_DFW_F WS_2015-01-22.pdf; http://www.drecp.org/draftdrecp/comments/CDREWG to DOI_CA_Gov_2015-01-22.pdf)
- joint comments regarding the Durability MOU (<u>http://www.drecp.org/draftdrecp/comments/Audubon CA_et_al_comments_on_Draft_Durability_Agreement_2015-02-12.pdf</u>), and
- separate comments on February 12, 2015 again raising the legal issues related to • the Congressional designation of NLCS lands within the CDCA which cannot be overturned by BLM or the Secretary (the NLCS issues were presented to the agencies in 2-014, but like so many other comments appear to have been ignored leading to a proposal to "newly" designate NCL lands that do not comply with the statutory directive). In sum, BLM quite simply does not have the authority to add or remove areas from the NLC System. While the Center supports providing additional protections in key areas in the California deserts, this is not a lawful mechanism for accomplishing those goals. (http://www.drecp.org/draftdrecp/comments/Center_for_Biological_Diversity_co mments on National Conservation Landscape System lands.pdf).

The Center also refers the agencies to the detailed information regarding inadequacies of the draft DRECP contained in comments submitted to the agency by other members of the public and key stakeholders including Desert Tortoise Preserve Committee, Desert Tortoise Council, Alliance for Desert Protection et al. (including SCWildlands Analysis) Defenders of Wildlife, National Parks and Conservation Association, Dr. Barry Sinervo, Sierra Club, and the California Native Plant Society).¹

¹ While the Center's comments do not address cultural resources or NHPA requirements the Center notes that the draft DRECP fails to adequately address those critical issues as well. The

In addition, the draft must be reassessed in light of recent changes in the legal status of two of the covered species – tricolored blackbirds are now listed under CESA on an emergency basis and flat-tailed horned lizards are now a candidate for listing under CESA. Our review of the draft DRECP shows that the proposed conservation for both of these species is woefully inadequate to ensure survival and recovery of the populations within the DRECP plan area (see below).

I. Legal Background Summary: Some Key Legal Issues

A. NEPA and CEQA Basics:

NEPA is the "basic charter for protection of the environment." 40 C.F.R. § 1500.1(a). In NEPA, Congress declared a national policy of "creat[ing] and maintain[ing] conditions under which man and nature can exist in productive harmony." *Or. Natural Desert Ass'n v. Bureau of Land Mgmt.*, 531 F.3d 1114, 1120 (9th Cir. 2008) (quoting 42 U.S.C. § 4331(a)). NEPA is intended to "ensure that [federal agencies] ... will have detailed information concerning significant environmental impacts" and "guarantee[] that the relevant information will be made available to the larger [public] audience." *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998).

Under NEPA, before a federal agency takes a "'major [f]ederal action[] significantly affecting the quality' of the environment," the agency must prepare an environmental impact statement (EIS). *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1067 (9th Cir. 2002) (quoting 43 U.S.C. § 4332(2)(C)). "An EIS is a thorough analysis of the potential environmental impact that 'provide[s] full and fair discussion of significant environmental impacts and ... inform[s] decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 993 (9th Cir. 2004) (citing 40 C.F.R. § 1502.1). An EIS is NEPA's "chief tool" and is "designed as an 'action-forcing device to [e]nsure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal Government." *Or. Natural Desert Ass'n*, 531 F.3d at 1121 (quoting 40 C.F.R. § 1502.1).

An EIS must identify and analyze the direct, indirect, and cumulative effects of the proposed action. This requires more than "general statements about possible effects and some risk" or simply conclusory statements regarding the impacts of a project. *Klamath Siskiyou Wildlands Center v. BLM*, 387 F.3d 989, 995 (9th Cir. 2004) (citation omitted); *Oregon Natural Resources Council v. BLM*, 470 F.3d 818, 822-23 (9th Cir. 2006). Conclusory statements alone "do not equip a decisionmaker to make an informed decision about alternative courses of action or a court to review the Secretary's reasoning." *NRDC v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988).

Center is also concerned that affected tribes have not be properly consulted on the impacts of the plan, and when consulted at all the agencies have not properly listened to or addressed the tribes' concerns.

NEPA also requires the action agency (here both FWS and BLM) to ensure the scientific integrity and accuracy of the information used in its decision-making. 40 CFR § 1502.24. The regulations specify that the agency "must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential." 40 C.F.R. § 1500.1(b). Where there is incomplete information that is relevant to the reasonably foreseeable impacts of a project and essential for a reasoned choice among alternatives, the FWS and BLM must obtain that information unless the costs of doing so would be exorbitant or the means of obtaining the information are unknown. 40 C.F.R. § 1502.22. In the context of the draft DRECP, some necessary additional information has already been identified and the agencies do appear to have attempted to compile an adequate set of data as a basis for the planning and the EIS and has made much of that information available to the public. However, the draft DRECP does not clearly or adequately *utilize and evaluate* all available information including for example providing mapping that is inaccurate and conclusions regarding conservation that are completely unexplained and unsupported. The draft DRECP also relies heavily on modeling without clearly explaining the assumptions used in the modeling and without clearly disclosing or explaining the point at which such assumptions become too tenuous to support meaningful conclusions. NEPA requires that in those instances where complete data is unavailable, the EIS also must contain an analysis of the worst-case scenario resulting from the proposed project; the draft DRECP fails to do so. Friends of Endangered Species v. Jantzen, 760 F.3d 976, 988 (9th Cir. 1985) (NEPA requires a worst case analysis when information relevant to impacts is essential and not known and the costs of obtaining the information are exorbitant or the means of obtaining it are not known) *citing Save* our Ecosystems v. Clark, 747 F.2d 1240, 1243 (9th Cir. 1984); 40 C.F.R. § 1502.22.

B. ESA Requirements for HCPs (or GCP) (§10) and for Other Actions (§7)

Congress passed the Endangered Species Act, 16 U.S.C. §§ 1531-44, in response to growing concern over the extinction of fish, wildlife, and plants. 16 U.S.C. § 1531(a)(1). The purpose of the ESA is to conserve the ecosystems on which endangered and threatened species depend and to conserve and recover those species so that they no longer require the protections of the Act. 16 U.S.C. § 1531(b); 16 U.S.C. § 1532(3) (defining "conservation" as "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary"). The Supreme Court has held that the ESA reflects "an explicit congressional decision to require agencies to afford first priority to the declared national policy of saving endangered species." *T.V.A. v. Hill*, 437 U.S. 153, 185 (1978). As the Ninth Circuit emphasized, "the ESA was enacted not merely to forestall the extinction of species (i.e., promote species survival), but to allow a species to recover to the point where it may be delisted." *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Service* ("*GP Task Force*"), 378 F.3d 1059, 1070 (9th Cir. 2004).

ESA protections only apply to formally "listed" species. 16 U.S.C. § 1533. Concurrently with listing, the Secretary must also designate the species' "critical habitat." 16 U.S.C. § 1533(b)(2). "[T]he purpose of establishing 'critical habitat' is for the government to carve out territory that is not only necessary for the species' survival but also essential for the species' recovery." *GP Task Force*, 378 F.3d at 1070. The Secretary must also develop and implement

recovery plans. 16 U.S.C. § 1533(f)(1); see Sw. Ctr. for Biological Diversity v. Bartel, 470 F. Supp. 2d 1118, 1136-37 & n.16 (S.D. Cal. 2006).

Section 9 of the ESA and its implementing regulations prohibit any person from "taking" a threatened or endangered species. 16 U.S.C. § 1538(a)(1); 50 C.F.R. § 17.31. A "person" includes private parties as well as local, state, and federal agencies. 16 U.S.C. § 1532(13). "Take" is defined broadly under the ESA to include harming, harassing, trapping, capturing, wounding, or killing a protected species either directly or by degrading its habitat sufficiently to impair essential behavior patterns. 16 U.S.C. § 1532(19); 50 CFR § 17.3. The ESA not only bans the acts of parties directly causing a take, but also bans the acts of third parties whose acts bring about the taking.

Congress created two "incidental take" exceptions to section 9's take prohibition. Exceptions to Section 9's take prohibitions are provided for actions by non-federal actors under Section 10 and for federal agency actions under Section 7. Section 10(a)(1)(B) authorizes the FWS to issue private parties and state and local governmental entities incidental take permits for "any taking otherwise prohibited by section 1538(a)(1)(B) [section 9] of this title if such taking is incidental to and not the purpose of the carrying out of any otherwise lawful activity." 16 U.S.C. § 1539(a)(1)(B).

Section 10: In order to obtain an Incidental Take Permit under the ESA Section 10 for incidental harm to listed species, habitat conservation plans ("HCP") are designed to offset any harmful effects the proposed activity might have on the species in accordance with § 10 of the ESA. 16 U.S.C. § 1539. For a habitat conservation plan, the plan, implementing agreement, and of Incidental Take Permits ("ITP") are analyzed and approved as a complete package. In order to issue a Section 10 ITP, FWS must also comply with Section 7 consultation requirements discussed in detail below—so-called self-consultation.

A permit applicant must prepare and submit to FWS a proposed HCP. 16 U.S.C. § 1539(a)(1)(B). An HCP must contain specific measures to "conserve," or provide for the recovery of, the species. At a minimum, the ESA and implementing regulations require all HCPs to include the following: (1) a complete description of the activity sought to be authorized; (2) names of the species sought to be covered by the permit, including the number, age and sex of the species, if known; (3) the impact which will likely result from such taking; (4) what steps the applicant will take to monitor, minimize, and mitigate those impacts; (5) the funding that will be available to implement such monitoring, minimization, and mitigation activities; (6) the procedures to be used to deal with unforeseen circumstances; and (7) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized. 16 U.S.C. § 1539(a)(2)(A)(i)-(iv); 50 C.F.R. §§ 17.22, 17.32. FWS cannot issue an incidental take permit if the HCP does not contain this information. 16 U.S.C. § 1539(a)(2)(A).

The ESA does not specifically authorize a so-called General Conservation Plan ("GCP") as proposed in the draft DRECP; this structure was developed by FWS as a policy in 2007. The policy itself states it is to be used for a "local area" and the Center does not believe that this large-scale plan covering diverse ecosystems, without clearly defined sub–areas, is an appropriate situation in which to utilize a GCP. Indeed, the policy Q&A also indicates that it

does not makes sense to use a GCP for such a large area and projects with as diverse scope and impacts as are included in the draft DRECP (wind, solar in differing technologies with very different impacts to species, geothermal, etc.):

GCP is not a substitute for a County- or State-wide regional HCP which would cover many activities differing in scope and type of impact. The Service does not have the personnel or expertise to adequately analyze all activities that would be addressed in planning efforts of this scale.

2007 FWS GCP Policy at 5-6. Furthermore, it is important to note that, *no ITP is issued with a GCP*—this is a critical point that has been obscured by the draft DRECP failure to clearly address this component of the proposed plan. The Center is concerned that FWS itself has been unclear about this key point; in conversations with FWS staff regarding the draft DRECP and on workshop Webex calls FWS staff has indicated that the all of the "take" would already be permitted—this is not true. *Only if* one or more HCPs are issued to one of the state agencies or commissions that are participating in the planning would *any* ITP be issued by FWS along with the approval of the DRECP and the "take" included under any such HCP would be limited to specific approvals and actions by those agencies or commissions.

In sum, while it is possibly that the GCP policy could be used to meet the statutory requirements and as a kind of "umbrella" for issuing future HCPs, that is *only* possible where the information and analysis meets *all* of the standards of an HCP. Even if a GCP could be adequately developed for the entire DRECP planning area (which the Center does not believe is likely to be possible), the draft DRECP clearly has not provided sufficient information or assurances to meet the standards required under the ESA §10 for an application or for FWS to make the required findings. Similarly, the information in the draft DRECP is insufficient for FWS to issue any HCP to any of the state agencies or commissions that are participating in the planning.

The proposed DRECP HCP/GCP does not meet the most basic initial requirements for including critical information. As one example, the draft DRECP does not adequately analyze and disclose the impact that is likely to result from the taking of covered species, primarily because the HCP/GCP contains inadequate and incomplete baseline, survey, and reserve data. Quantified take estimates are largely absent, relying on qualitative rather than quantitative values and losses to species are likely underestimated because the HCP/GCP did not utilize sufficient survey data prior in designing the reserve and relied heavily on modeling and general vegetation mapping. Among other problems these models are based on incomplete survey information that leaves out entire areas of private lands that have never been surveyed. As another example, the draft DRECP does not show that funding will be available to implement needed monitoring, minimization and mitigation activities. The Draft DRECP also fails to explain how alternative actions (including limiting the use of some renewable energy technologies in key areas) could avoid take of listed species including, for example, listed avian species like the Southwestern willow flycatcher and Yuma clapper rail.

Upon reviewing an HCP and before permit issuance, the FWS must make specific findings. FWS must find that (i) the taking will be incidental; (ii) the applicant will, to the

maximum extent practicable, minimize and mitigate the impacts of such taking; (iii) the applicant will ensure that adequate funding for the plan will be provided; (iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (v) any other measures FWS requires will be met. 16 U.S.C. § 1539(a)(2)(B); 50 C.F.R. §§ 17.22, 17.32. Only if the FWS makes positive findings under section 10, FWS will issue the applicant an incidental take permit. 16 U.S.C. § 1539(a)(2)(B). It would be impossible for FWS to make the required findings based on the draft DRECP as the document provides no meaningful analysis of survival and recovery of the listed species, and no measures to minimize or mitigate the impacts to many of the listed species in the plan area—most glaringly contains no measures to reduce impacts to Yuma clapper rail which have already been "taken" by solar projects in the region.

The ESA also has strict requirements for ongoing monitoring of implementation of ITPs issued under section 10 that cannot be violated. If any conservation and management measures fall short, then the conclusions in the Biological Opinion are rendered invalid, consultation must be reinitiated and the ITP should be suspended or revoked. *See* 50 C.F.R. § §13.27 ("may be suspended at any time if the permittee is not in compliance with the conditions of the permit"), § 13.28 (permit revocation). Failure to comply with the mandatory terms and conditions of an incidental take permit constitutes a violation of the section 9 "take" prohibition. 16 U.S.C. § 1539(a)(2)(C).

Section 7: a federal agency may take listed species only in accordance with an Incidental Take Statement ("ITS"). 16 U.S.C. § 1536(b)(4). Section 7(a)(2) requires that "[e]ach Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species." 16 U.S.C. § 1536(a)(2). The Secretary has delegated compliance with the ESA consultation requirements for terrestrial species to the Fish and Wildlife Service ("FWS"). The consultation process is designed "to ensure compliance with the [ESA's] substantive provisions." *Thomas v. Peterson*, 753 F.2d 754, 764 (9th Cir. 1985). BLM's approvals of plan amendments and the FWS' approval of an HCP or GCP are agency actions requiring ESA Section 7 consultation. *See Pacific Rivers Council v. Thomas*, 30 F.3d 1050, 1057 (9th Cir. 1994).

Formal Section 7 consultation results in a biological opinion ("BO") determining whether the proposed action is likely to jeopardize a listed species or destroy or adversely modify its critical habitat. 16 U.S.C. § 1536(b)(3)(A). In making this determination, FWS must use the best available scientific information to evaluate the current status of the species and habitats, the effects of the action on species conservation, and the cumulative effects. 16 U.S.C § 1536(a)(2), (b)(3)(A); 50 C.F.R. §§ 402.14(g)-(h), 402.02. If the BO concludes that the action will not jeopardize a listed species or destroy or adversely modify its critical habitat, FWS may authorize incidental take and issue an ITS based on the BO. An ITS must specify the impact of any incidental take and reasonable and prudent measures necessary to minimize impacts, and set forth terms and conditions to implement those measures. 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i). Having not seen any draft biological opinion for the plan amendments or proposed HCP/GCP it is difficult to say whether FWS could make the needed determinations. However, based on the scant analysis of impacts to listed species survival and recovery found in the draft DRECP the Center is skeptical that the needed BOs could be issued at this time. As just one example, the Draft DRECP fails to adequately address the recovery needs of the Western Mojave Recovery Unit of the desert tortoise or to even provide sufficient conservation in that key habitat area to ensure survival of that population over time. Indeed, relatively few of the conservation actions address the management protections needed in the West Mojave area which is subject to multiple threats from increasing ORV use and other actions that damage existing habitat in addition to the likely impacts that may occur from development of renewable energy in this very high solar resource area.

The Draft DRECP needs substantial revisions to provide the information needed and analysis that are required to support the likely "take" of listed species that would be authorized under the proposed DRECP and to ensure that destruction and adverse modification of critical habitat does not occur.

C. MBTA and BGEPA

The federal Migratory Bird Treaty Act ("MBTA") which was enacted to fulfill the United States' treaty obligations to protect migratory birds and provides that "[u]nless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill . . . any migratory bird." 16 U.S.C. § 703(a); *see also Missouri v. Holland*, 252 U.S. 416, 434-35 (1920) (describing the "national interest of very nearly the first magnitude" in protecting migratory birds "that yesterday had not arrived, tomorrow may be in another State and in a week a thousand miles away").

The MBTA authorizes the Secretary of the Interior to promulgate regulations allowing the take of birds otherwise protected by the MBTA when doing so would be compatible with migratory bird conventions. 16 U.S.C. § 704(a). The Secretary has delegated this authority to FWS, which has promulgated regulations allowing the take of migratory birds after the issuance of a permit, under specified circumstances. *See* 50 C.F.R. §§ 21.11, 21.27, 21.42. FWS's regulations underscore the statute's categorical prohibition on taking migratory birds "except as may be permitted under the terms of a valid permit issued pursuant to the provisions of [the agency's MBTA regulations]." 50 C.F.R. § 21.11. FWS's list of species protected by the MBTA includes many birds that may be taken by wind or solar projects in the DRECP area, including both rare and common species. (*See* 50 C.F.R. § 10.13 [list of migratory birds].) Because many migratory birds that are protected under the MBTA may be killed by development permitted under the draft DRECP the agencies should have addressed these issues including breeding and nesting habitats and migratory pathways across the DRECP plan area.

Notably, in comments on a recently proposed solar power tower considered by the CEC, FWS explained that:

The unauthorized take of migratory birds is illegal under the Migratory Bird

Treaty Act (MBTA) and currently, there are no mechanisms for the issuance of an incidental take permit for migratory birds for a project such as this. . . . the proposed mitigation does not alleviate the responsibility of PSH to avoid impacts to migratory birds under the MBTA. Furthermore, without a clear assessment of bird use of the site and the level of harm the project may cause from direct and indirect take of migratory birds, we do not have any basis to evaluate whether total impacts from the project could be adequately offset through other conservation measures.

. . .

The BBCS [bird and bat conservation strategy] is not a surrogate for a take permit under the MBTA; therefore it does not limit or preclude the Service from exercising its authority under any law, statute, or regulation, nor does it release any individual, company, or agency of its obligations to comply with Federal State, or local laws, statutes, or regulations.

(FWS comments on Palen SEGS proposal, TN201199 at pdf 9 & 10, enclosure 1, page 4 & 5 (emphasis added), available at on the CEC website.) The FWS makes it clear that all development projects are liable for any take of MBTA covered species. At minimum, the draft DRECP should have analyzed impacts, and considered avoidance as well as potential minimization and mitigation measures.

Golden eagles and bald eagles are protected under the federal MBTA and also protected under the federal Bald and Golden Eagle Protection Act ("BGEPA") 16 U.S.C. § 668 *et seq.* Take of any eagle without a permit is prohibited under Federal law. (16 U.S.C. § 668 *et seq.*) The draft DRECP proposes that projects could take fifteen (15) golden eagles per year but provides insufficient information or analysis to support that level of take in the DRECP project area and issuance of a permit. If FWS intends to issue a BGEPA permit for the take of golden eagle under BGEPA in the DRECP area, the draft DRECP must be revised to provide far more information and analysis in order to show that eagle populations will be protected; relying on future monitoring efforts and adaptive management measures is insufficient as a matter of law. Moreover, where, as here the draft DRECP does not provide for secure funding for needed monitoring or future potential adaptive management mitigation measures, reliance on such measures would be illusory at best.

D. NCCPA Requirements

The most basic requirements of the NCCPA are to provide conservation for natural communities, CESA listed species, and other covered species. Moreover only through a valid NCCP can any take of fully protected species (including golden eagle, Yuma clapper rail and others) be authorized. These issues are more fully explored in the comments from Defenders of Wildlife and we incorporate that aspect of those comments herein.

Unfortunately, the draft DRECP does not meet these requirements. As just two key examples: the draft DRECP relies on "step down" BGOs not anticipated in the statute (see more on this issue below) and provides no clear or firm funding source for the needed conservation acquisitions or management and enforcement actions on public lands.

E. FLPMA Requirements for Plan Amendments and Other Actions

FLPMA contains several provisions related to BLM's planning and management of the public lands including those within the DRECP plan area. To protect and conserve the public lands and resources, FLPMA requires that BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C § 1732(b). FLPMA also requires that BLM prepare and maintain a current inventory of all public lands and their resources. 43 U.S.C. §1711(a).

In addition, as part of FLPMA, Congress designated 25 million acres of southern California as the California Desert Conservation Area ("CDCA"). 43 U.S.C. § 1781(c). Congress declared in FLPMA that the CDCA is a rich and unique environment teeming with "historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources." 43 U.S.C. § 1781(a)(2). Congress found that this desert and its resources are "extremely fragile, easily scarred, and slowly healed." *Id.*

FLPMA also contains planning requirements. FLPMA mandates "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use." 43 U.S.C. 1711 (a) (8). The BLM must also "give priority to the designation and protection of areas of critical environmental concern" and "weigh [the] long-term benefits to the public against short-term benefits" (43 U.S.C. 1712 (c)(3 & 7)). Importantly, "areas of critical environmental concern" should be given priority in planning. According to statute, these are:

Areas within the public lands where special management attention is required ... to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.

43 U.S.C. § 1702. FLPMA also contains a multiple use mandate requiring BLM "observe the principles of multiple use and sustained yield." 43 U.S.C. 1712 (c)(1). Balancing these requirements is a key part of the planning process and must be transparent and fully analyzed in any proposed plan amendment.

Unfortunately, the draft DRECP does not provide sufficient information to show that BLM's proposed plan amendments meet the FLPMA standards to prevent unnecessary and undue degradation of our public lands or to appropriately protect key resources including ACECs in balance with other multiple uses in the planning area. This is particularly troubling as the draft DRECP proposes plan amendments that would completely restructure the CDCA plan and would lock in recreational use, primarily for motorized recreation, over millions of acres of the plan area.

II. The Draft DRECP and EIS/R Fail to Adequately Identify and Analyze the Impacts of the Proposed Plan Amendments Under NEPA or CEQA.

A. Baseline and environmental setting information is inadequate, and unstable and the Draft provides inadequate information on proposed conservation rollbacks

A primary flaw in the Draft EIR/EIS is that the agencies have not properly identified the baseline, particularly as to existing conservation. This information is necessary to determine the direct and indirect impacts of the project, as required under NEPA and CEQA. The baseline or environmental setting is critical to identification and analysis of impacts. In order to assess the impacts of a project the agencies must have detailed and specific information regarding the resources of the project site and the baseline should reflect the project's real-world physical setting and management designations and prescriptions.

Under NEPA the agencies must "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 C.F.R. § 1502.15. Establishing baseline conditions of the affected environment is an essential requirement of the NEPA process. In *Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit stated that "without establishing...baseline conditions...there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." Without a clear understanding of the current status of resources and existing conservation management designations at issue in the draft DRECP on public lands the agencies cannot make a rational decision regarding proposed plan amendments. *See Center for Biological Diversity v. U.S. Bureau of Land Management, et al.*, 422 F. Supp. 2d 1115, 1166-68 (N.D. Cal. 2006) (holding that it was arbitrary and capricious for BLM to approve a project based on outdated and inaccurate information regarding biological resources found on public lands).

Similarly, under CEQA agencies must identify the "real conditions on the ground" rather than "hypothetical situations." (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 121, 125; see also Woodward Park Homeowner's Association v. City of Fresno (2007) 150 Cal.App.4th 683, 708-09.) The environmental setting or baseline information must be fair and accurate and cannot understate the value of the environmental resources or other baseline conditions so as minimize the significance of the impacts of the proposed project. (*San Joaquin Raptor/Wildlife Rescue Center* v. County of Stanislaus (1994) 27 Cal. App. 4th 713, 725 [finding that failure to adequately describe habitat "understates the significance of" the resources and avoiding discussion of those resources "precluded serious inquiry into or consideration of" potential impacts of the project.].)

Detailed comments regarding the lack of adequate information for existing conservation areas including ACECs is provided in the chart below in Section V (which also details significant conservation rollbacks from the baseline that are proposed but not explained in the draft). As just one example of the mapping inaccuracies, the boundaries of California's Red Rock Canyon Desert State Park provided in the draft and on the databasin site are inaccurate . The maps and GIS layers fail to reflect the Congressionally mandated transfer of lands to the State of California for inclusion in Red Rock Canyon Desert State Park in the CDPA in 1994² which also mandated that the lands within the Park boundaries shall be managed to "provide maximum protection for the area's scenic and scientific values" if title to some of the lands are not transferred to the State. 16 USCA § 410aaa–71, (CDPA Section 701). The BLM also ignores the Interior Department's Public Land Order withdrawing these lands from mineral entry and requiring BLM "to protect the park resources of the lands until they can be conveyed to the State of California as mandated by Congress." Public Land Order # 7260, 62 Fed. Reg. 26324 (May 13, 1997); *see also* MOU BLM-CDPR, 1995. BLM's existing (largely unfulfilled) commitments to work expeditiously to transfer the lands within this area to the State is also relevant to the question of whether BLM's proposed commitments to provide conservation under the Draft DRECP are likely to be fulfilled.

The No Action Alternative used in the draft DRECP to formulate the baseline for analysis of plan impacts ignores much of the existing conservation including wildlife allocations and MUC class overlays that currently restrict activities inconsistent with conservation in many areas without any explanation.

The existing management of the ACECs on BLM-administered lands under the No Action Alternative is described in Section II.2.2. Desert Wildlife Management Areas (DWMAs) are included as ACECs here. Existing BLM land use plans have other designations, including *wildlife allocations*, Special Recreation Management Areas (SRMAs), Extensive Recreation Management Areas (ERMAs), Cultural Districts, *eligible Wild and Scenic Rivers*, grazing allotments, *and lands with wilderness characteristics that, combined with the BLM multiple use class overlays, determine BLM land management decisions and provide for resource management in these areas;* however, these designations are *not* specifically included as biological conservation under the No Action Alternative.

(Draft DRECP at II.2-4). This makes no sense and appears to be an attempt by BLM to reduce the appearance of the existing baseline conservation and management restrictions, particularly within the CDCA, in order to make the proposed DRECP appear to have far more new conservation "gains" than it actually does.

The Center is also concerned that while the initial plan boundaries included the Algodones Dunes area (also known as Imperial Sand Dunes Recreation Management Area ("ISDRA")) on BLM managed public lands, later plan boundaries were gerrymandered to exclude this area. This has two results that undermine the plan: 1) the draft DRECP plan does

² The Center was shocked that no one at the California State agencies reviewing the draft DRECP noted this clear discrepancy (and many others). On inquiry, we were informed that many of the most experienced staff at State agencies were given only a week to review the administrative draft of the draft DRECP—a document containing over 8,000 pages. This may help explain the pervasive mistakes throughout the document. Certainly, a stitch in time saves nine—in the rush to get the document out for comment the DRECP agencies ignored this common sense tenant. We urge the DRECP agencies to revise and recirculate the draft, and *first provide ample time for staff at each of the affected agencies to review the administrative draft*.
not include one of the key important habitat areas in the landscape being considered; and 2) the draft DRECP fails to acknowledge or account for changes in management at the Algodones Dunes by BLM since the planning agreement was signed that significantly reduce conservation for many rare and imperiled species and key natural communities within the DRECP plan area. This issue was raised repeatedly with the BLM as well as in an open letter to the Secretary of the Interior (*see* Attachment 4) before the most recent ISDRA plan amendment was adopted; unfortunately, it was ignored.

The draft DRECP also contains inadequate baseline and environmental setting information regarding migratory birds (particularly migration pathways) which is needed to analyze impacts of the proposed development of both wind and solar projects under the MBTA, bats, invertebrates, rare plant populations (as distinguished from natural communities), surface and groundwater resources and current quantity and quality, and soil resources among others.

B. The Draft DRECP provides inadequate identification of conservation rollbacks and virtually no analysis of impacts of conservation rollbacks (including changes in mitigation ratio) on species survival and recovery.

Baseline conservation established in the CDCA and its amendments (including but not limited to the West Mojave Plan, Northern and Eastern Colorado Plan and Northern and Eastern Mojave Plan) is not accurately or readily presented in the Draft EIS/R and appendices. The DEIS/R has no table or description that distills the existing conservation investments in the proposed plan area. Appendix L describes the existing ACECs (which are not all of the existing conservation areas) but there are many inaccuracies in the most basic descriptions of these conservation areas including the amount of acreage included in them. For example, the ACECs adopted in the West Mojave plan for desert tortoise conservation and critical habitat protection shrunk over 55,000 acres in the baseline description of these same ACECs in Appendix L (see comment below). The DEIS/R has no discussion of these conservation rollbacks including no analysis of impacts to the resources for which they were established.

C. DFAs are too big and unclear, impacts by technology remain unanalyzed, and the inclusion of extensive "undesignated" areas undermines the planning.

As explained in many comments from other stakeholders and environmental organizations, the DFAs are too big and the impacts within those areas from proposed development remain largely unanalyzed. In addition, the draft DRECP fails to refine the existing DFAs, including Riverside East, and variance lands within the plan area to clarify what areas may actually be developable. Similarly, the inclusion of large areas within the planning area that are "undesignated" undermines the ability to analyze either the sufficiency of development areas or impacts. Rather the draft largely "kicks the can down the road" and leaves these critical questions to be sorted through on a case by case basis—as a result, many of the anticipated benefits of planning would not be realized. In addition, the draft DRECP fails to address impacts of the various renewable energy technologies in a detailed way (including particularly impacts to avian species--migratory birds and golden eagles—and invertebrates). Because the draft DRECP fails to move forward in analyzing and hopefully resolving such conflicts remaining from earlier planning it fails to fulfill its goals. We suggest that, as one step forward, the agencies should

carefully review the comments submitted by Alliance for Desert Protection et al. (including SCWildlands Analysis of a portion of one DFA) and consider using a similar methodology to refine any proposed areas open for development in a revised draft DRECP. In addition, the agencies should ensure that the next revised draft of the DRECP is developed in concert with local counties and cities planning efforts to ensure that the DRECP is consistent and truly meets the stated goals for both development and conservation.

While the draft DRECP modeling relies heavily on vegetation modeling in the plan area and in modeling habitat and proposed conservation for various species, it fails to integrate much of the species-specific information about how habitat is used by the covered species and analysis of threats (even basic information in the recovery plans and biological opinions developed by FWS regarding habitat and threats and impacts to listed species within the plan area are not integrated into the analysis). When revising this aspect of the proposed DRECP we urge the agencies to go back to basics and review the existing literature and new literature on these critical aspects of species conservation. It is not sufficient to simply list reference documents, the agencies must show that they actually reviewed and analyzed the issues and incorporated data and recommendations from those scientific references and recovery plans. Ongoing and new research should also be considered and incorporated into the revised draft plan to provide the needed robust analysis. *See, e.g.,* Jennings and Berry 2015 ("Desert tortoises track seasonal flowering plant patters of preferred food plants"); Abella and Berry 2015 ("Synthesizing Best Management Practices for Habitat of Agassiz's Desert Tortoise"); Germano et. al. 2015 (Mitigation-driven translocations: are we moving wildlife in the right direction?).

D. Little to No Identification and Analysis is Provided of the Impacts of Various Solar and Wind Technologies on Avian Species

In addition to well-documented impacts at Ivanpah SEGS, recent information from Crescent Dunes Project in Nevada (see information about recent bird kills from testing of that project at <u>http://www.basinandrangewatch.org/CrescentDune.html</u>), shows impacts to bird is significant from power towers of different designs. Potential "lake effect" impacts is still little understood for both large scale PV and power towers but is causing sensitive species mortalities. Evidence from a large PV solar project – Desert Sunlight - and a solar trough project – Genesis documented many water bird mortalities³. Indeed, Desert Sunlight reported a state and federally endangered species bird mortality – the Yuma clapper rail (*Rallus longirostrus yumanensis*)⁴, despite the fact that on-site surveys never identified this species as occurring on the site, nor was habitat present on site. The Ivanpah Solar Electric Generating System site has also reported the mortality of the fully protected peregrine falcon (among many other migratory birds) on its project site⁵. Few if any of the bird species that died on the project sites were recorded as

 $[\]label{eq:solar-water-birds-turning-up-dead-at-solar-projects-in-desert.html; http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-$

⁰⁸C/TN200657_20130930T120056_August_2013_Monthly_Compliance_Report.pdf

⁴<u>http://www.kcet.org/news/rewire/solar/water-birds-turning-up-dead-at-solar-projects-in-desert.html</u>

⁵ <u>http://docketpublic.energy.ca.gov/PublicDocuments/07-AFC-</u> 05C/TN200642_20130930T090221_Avian_Mortality_Report_912013.xlsx

occurring on site in the pre-construction avian surveys. These large solar projects may in fact be attracting migratory birds to them, through the birds mistaking the project infrastructure as water – the "lake effect".⁶

D. The Draft DRECP Fails to Provide A Range of Alternatives That Would Avoid Significant Impacts of Many of the Components of the Proposal.

Because the draft DRECP does not utilize an accurate baseline, the analysis of impacts and the formulation of alternatives is inadequate at the outset as a matter of law under both NEPA and CEQA.

Putting that critical failing aside for the moment, the Center notes that the alternatives analyzed are inadequate as well. One example of an unexamined alternative is that there is no alternative that would eliminate the proposed sweeping changes to the CDCA plan structure, keep the existing designations in place, and stop all conservation rollbacks while still allowing for development in the plan area. As mentioned in earlier comments, there is also the glaring omission of any alternative that would take into account distributed renewable energy development in the plan area and in the primary energy markets in California (particularly the LA Basin and inland empire) in order to reduce some or all of the burden of meeting energy targets on natural lands in the California desert.

III. The Draft DRECP fails to Meet the Requirements of California's NCCPA or the Federal ESA.

A. The Draft DRECP does not adequately address the NCCPA standards.

As noted above and in other comments, there is simply no provision for "step down BGOs" under the NCCPA. In Appendix N2 there is a very short discussion of the "proportionality" and the "approach" the draft DRECP utilized. However, the draft DRECP completely fails to explain how the percentage for each step down BGO was reached or provide any analysis of how the rest of the BGO would be met.

At minimum, if some kind of "step down" framework for this NCCP continues to be considered, the agencies must explain in detail how the percentages are derived and how the "remaining BGOs" (so to speak) would be met. Here, the draft DRECP provides no such information and is woefully inadequate. As a result the draft DRECP cannot meet the most basic NCCPA standards and CDFW cannot make the needed findings.

Specific examples of inadequacies with the analysis of impacts to species and habitats in formulating the BGOs are provided below in the chart in Section V and in comments from other environmental organizations. These relate to the NCCPA standards as well as ESA, MBTA, and other legal standards.

⁶ http://www.kcet.org/news/rewire/solar/water-birds-turning-up-dead-at-solar-projects-in-desert.html

Another significant issue regarding the NCCP aspect of the plan is that how the agencies identified the so-called "Conservation Priority Areas" is never clearly explained in the draft DRECP. When the Center inquired about how these areas were selected we were informed it was done by various contractors and staff in a process of overlaying various mapping layers and making choices and that in order to understand it "you had to be in the room." The NCCPA, NEPA and CEQA all require far more explanation and transparency from the agencies regarding key aspects of this important planning proposal. The draft DRECP is intended to be based on science and, at the very least, this requires the agencies to be able to actually *explain* the proposal and the conclusions reached regarding key conservation issues such as priorities for future acquisitions on private lands.

B. Inadequate information or analysis to issue a GCP or HCP.

The draft DRECP describes the proposed GCP as follows:

The GCP component of the DRECP is *a programmatic type of HCP* that the USFWS has prepared to fulfill the federal mandatory requirements in Section 10(a)(1)(B) of the ESA and *support applications for* incidental take permits covering renewable energy development on nonfederal lands.

I.2-20 (emphasis added). Any statements by FWS staff that specific levels of "take" would actually be authorized under the proposed GCP are clearly erroneous. The GCP can support applications for an HCP but cannot itself authorize any take.

Appendix M which ostensibly provides the GCP application materials is riddled with general statements and conclusions and provides virtually no analysis of impacts to conservation (including recovery) for listed species and insufficient information about baseline conservation status and the future needs of other covered species. The many charts included in Appendix M, while helpful, do not fill the significant gap in providing the needed identification and analysis of these key conservation components required under the ESA §10 and §7. For example, most of the alternatives propose reducing required mitigation for desert tortoise critical habitat throughout the CDCA from as high as 5:1 currently, down to 1.5:1 or 2:1 (except for transmission which will remain at 5:1); nowhere does FWS address how significant reductions in mitigation ratios for critical habitat will affect this imperiled and declining species' recovery in the future—this is a glaring omission.

The draft DRECP also indicates that:

According to Section 10(a)(2)(A) of the ESA, the CEC and the California State Lands Commission (CSLC) are submitting to the USFWS separate applications for incidental take permits under the GCP for renewable energy projects under CEC jurisdiction on nonfederal lands and within CSLC's existing land ownership. In addition, the USFWS also would consider issuance of future Section 10(a)(1)(B) permits to individual applicants or local jurisdictions that apply for incidental take authorization for renewable energy projects on nonfederal lands that are consistent with the USFWS proposed GCP. I.2-21 (emphasis added). Those "separate applications" (ostensibly HCP applications) were not included in the draft DRECP or appendices. In attempting to apply a GCP that has not even been fully developed to support HCP applications that have not even been submitted, the reach of the FWS in the draft DRECP as to this legal framework has clearly exceeded its grasp. The Center looks forward to reviewing a more fully formed GCP proposal and any separate applications for HCPs as part of the required public review process in a revised draft DRECP.

As also explained above, in order for FWS to issue an GCP for the DRECP plan or an HCP to any of the state agencies or commissions that are participating in the planning, specific standards contained in ESA § 10 must be met and the FWS must make the required findings. The draft DRECP does not meet these standards as just a few examples clearly show.

First, as noted above, there baseline conservation is not adequately identified such that a meaningful analysis can be made of conservation roll backs, impacts from development and any additional conservation efforts. Second, the draft DRECP fails to provide the needed background information on the current status of listed species and critical habitats in the context of each of the species' survival and recovery goals. Third, there is no assurance that funding will be available for the needed conservation actions; perhaps most importantly, there is no assurance that BLM will provided the needed management and enforcement on public lands that are intended to be used to offset impacts to species from private, state, and local activities and to actually provide the needed conservation for covered species. Moreover the structure for management is unworkable—there needs to be professional staff dedicated to this NCCP/HCP if it will go forward. Other comments from members of the public who have worked closely on functioning NCCPs and HCPs highlight many of these issues as well.

FWS cannot rely on good will and empty promises in issuing a GCP for the DRECP plan or an HCP to any of the state agencies or commissions that are participating in the planning. Much more needs to be done to bring the draft DRECP in line with the ESA § 10 requirements; we look forward to a revised draft that addresses these and other issues.

IV. The Analysis of the Proposed Land Use Plan Amendments in the Draft DRECP fail to adequately address NEPA, FLPMA, Executive Orders, and Regulations.

A. Sweeping Proposed Changes to the CDCA Plan including to all MUC Classifications Are Unclear, Unexamined, and Beyond the Scope of the Proposed Plan Amendments

Instead of building on the existing CDCA Plan and its strong conservation focus, the draft DRECP proposes to sweep away much of the core structure of the CDCA Plan without explanation or rationale. In the Center's scoping comments we specifically urged the BLM to build on the CDCA Plan (September 12, 2011 at page 13):

<u>Planning Area</u>: The DRECP planning area should include the California Desert Conservation Area (CDCA), and *build upon the significant conservation designations and policies for public and private lands across the entire CDCA*.

For BLM managed lands, the CDCA Plan, as amended (amendments include those for the Northern and Eastern Colorado Desert, Western Colorado Desert, Northeastern Mojave Desert, Western Mojave Desert, and Coachella Valley) should be used as a foundation to build a strong DRECP for multiple species on an ecosystem or landscape level that includes conservation strategies to assure the long term survival and viability of biological diversity on both federal and private lands with significant biological resources and values.

Unfortunately, the BLM appears to have ignored those scoping comments from the Center along with many of the other public comments.

The baseline MUC classifications are mentioned briefly but not clearly explained in the No Action alternative, and the proposed sweeping changes to the existing MUC classifications in the proposed plan amendments for the CDCA in the draft DRECP are also unclear, unexamined and beyond the scope of the proposal. The Executive Summary provides conflicting information regarding the purpose of the plan stating variously that it will the multiple use mandate (ES at 11) and that *only in areas outside the DRECP plan area but within the CDCA* it will make "land use allocations *to replace multiple-use classes*" (*Id.*; emphasis added).

However, in the Preferred Alternative the section on Multiple Use Classifications appears to state that all MUC classifications within the CDCA will be replaced by new land use allocations. In Section II.3.2.4.1 Multiple-Use Classes, the draft text discusses changes in the classification of "non-designated land" cherry-stemmed within wilderness and to other "non-designated lands" from current MUC classes to two new "land use allocations" called "standard focus" and "conservation focus". Draft DRECP at II.3-424. The accompanying Table II.3-5, however, includes all lands within the DRECP implying that under the preferred alternative BLM is proposing to remove the MUC classification from *all* lands in the CDCA not just "non-designated lands". As a result, the draft DRECP does not properly explain the proposal which appears to completely restructure the CDCA Plan without any rationale given or need shown.

Moreover, although Table II.3-5 states that it provides a "crosswalk" between the current MUC classes and the proposed area designations in the preferred alternative— it does not, it only provides information about the multiple uses that may be allowed in various areas under the proposed preferred alternative. At minimum this entire section must be revised to provide a clear proposal and the needed comparison between the current MUC classes and what is being proposed as the new "land use allocations."

MUC classifications provide management direction for lands that are being retained in federal ownership (and not suitable for disposal from the federal estate) in order to ensure proper administration of such lands. (*See* 43 C.F.R. § 2420.2; classification criteria.) If the draft DRECP intended to undertake a project of replacing all of the MUC classification in the CDCA with other "land use allocations," then to comply with NEPA, BLM would have had to notify the public of that purpose in scoping, it did not. Moreover, BLM would need to explain how these proposed changes would affect public lands management, it did not.

The purpose of this sweeping change to the CDCA Plan in the proposed DRECP is baffling. Moreover, BLM has failed to provide even the most basic information or analysis about what is gained or lost by replacing MUC classes that were designated in accordance with specific regulatory criteria for retained land and other core CDCA frameworks that have been in place for over 30 years with a new set of "land use allocations" in the DRECP.

B. The Proposed SRMA and ERMA Designations Is Beyond the Scope of the Proposed Plan Amendments In Violation of NEPA and the NEPA Analysis Is Inadequate.

The draft DRECP creates over three (3) million acres of new Special Recreation Management Areas ("SRMA") and Extensive Recreation Management Areas ("ERMA") that create a new paradigm for recreation throughout the California deserts and promote neither the conservation goals nor facilitate renewable energy development, which are the only stated purposes of the DRECP. Because BLM failed to notify the public that designing a new recreation paradigm could be part of the proposed plan amendment process in the Notice of Intent, proposing these designation changes at this time is a violation of both NEPA and FLPMA. The BLM's Notice of Intent for the proposed Plan Amendments states:

The DRECP will advance State and Federal conservation goals in the desert regions of California while also facilitating the timely permitting of renewable energy projects under applicable State and Federal laws, and is intended to complement the Solar Programmatic EIS, which is currently under environmental review as well. Thus far, the agencies have identified the need to: provide conservation and management of identified species in the planning area, along with the natural communities and ecosystems that support these species, build on the Competitive Renewable Energy Zones identified by the State's Renewable Energy Transmission Initiative, while identifying the most appropriate locations in the planning area for development of utility scale renewable energy projects that will not burden existing resources, standardize mitigation and compensation requirements for energy activities in the planning area, and to streamline the permitting process of energy projects that results in greater conservation values than current methods.

The purpose of the public scoping process is to determine relevant issues that will influence the scope of the environmental analysis, including alternatives for the RMP areas and to guide the process for developing the Draft EIS/PA. The BLM has identified the following preliminary issues: special status species, mitigation measures for special status species, vegetation communities, cultural resources, special area designations, and areas of high potential for renewable energy development.

77 Fed. Reg. 20409, 20410 (April 4, 2012); *see also* 74 Fed. Reg. 60291, 60292 (Nov. 20, 2009)7. The CEQ regulations implementing NEPA clearly require to reinitiate the scoping

⁷ "the planning goals for the DRECP include, but are not limited to, the following:

process "if substantial changes are made later in the proposed action, or if significant new circumstances or information arise which bear on the proposal or its impacts." 40 C.F.R. § 1501.7(c). FLPMA requires that plan amendments be developed with public input. Moreover, for any designation of recreation areas BLM's own regulations, the "Designation procedures" for recreation areas, require "Public notice of *designation or redesignation*" in a scoping process. 43 C.F.R. §8342.2(b) (emphasis added).

Certainly, it is appropriate that BLM would consider impacts *to* recreation (among many other things) from the proposed plan amendments that would be designed to support conservation and the development of large scale renewable energy projects in the planning area-the stated purposes of the DRECP ("to advance State and Federal conservation goals in the desert regions of California while also facilitating the timely permitting of renewable energy projects under applicable State and Federal laws"; 77 Fed. Reg. 20409, 20410). However, in this draft DRECP BLM has unlawfully *turned the process on its head* and, instead, re-structured the proposed Plan Amendments to lock-in new designations for recreation areas (the vast majority of which allow for motorized recreation) on over 3.6 million acres of the planning area without any public notice of this sweeping change of focus or that such designations would be part of the plan. Rather than promoting renewable energy development and protecting conservation goals, the vast areas included in the proposed SRMA and ERMA designations in the draft Plan Amendments appear to be most concerned with protecting motorized recreation at the expense of conservation goals and renewable energy development.

Detailed information about the conflicts between the proposed SRMAs and ERMAs and other resource values that are not clearly identified in the draft DRECP and not analyzed under the minimization criteria. Just a few examples include, but are certainly not limited to: the proposed El Paso/Rand, Red Mountain and Superior/Rainbow SRMAs in the Western Mojave which all overlap with federally designated critical habitat for the desert tortoise, ACECs/DWMA established for desert tortoise conservation and recovery under the West Mojave Plan amendment to the CDCA and the Desert Tortoise Research Natural Area. (Appendix L_BLM Worksheets – SRMA-ERMA_Part29). In the Eastern Mojave, the proposed

• Provide for the long-term conservation and management of identified species in the planning area;

• Preserve, restore, and enhance natural communities and ecosystems that support identified species in the planning area;

• Build on the Competitive Renewable Energy Zones identified by the State's Renewable Energy Transmission Initiative that depict areas where renewable energy generation project permitting may be expedited;

• Identify the most appropriate locations in the planning area for the development of utility-scale renewable energy projects, taking into account potential impacts to threatened and endangered species, sensitive natural communities, and cultural resources;

• Coordinate and standardize mitigation and compensation requirements for renewable energy activities in the planning area; and

• Develop an efficient process for authorizing renewable energy projects in the planning area that results in greater conservation values than the process provided by project-by-project or species-by-species reviews."

Ivanpah Valley ERMA overlaps with federally designated critical habitat for the desert tortoise, ACEC/DWMA established for desert tortoise conservation and recovery under the Northern and Eastern Mojave Plan amendment and the Shadow Valley ERMA overlaps key connectivity corridors for desert tortoise and bighorn sheep. (Appendix L_BLM Worksheets – SRMA-ERMA_Part37). These glaring conflicts are not identified much less analyzed in the DEIS/R.

B. The Draft DRECP is Inadequate Because it Fails to Address FLPMA Standards or the Minimization Criteria in Executive Orders and Regulations for the Proposed SRMA and ERMA Designations.

FLPMA contains several provisions related to BLM's planning and management of the public lands including those within the DRECP plan area. To protect and conserve the public lands and resources, FLPMA requires that BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C § 1732(b).

In 1972 and 1978 President Nixon and Carter respectively issued Executive Orders which sought to control the growing use of ORVs and their attendant environmental damage by mandating BLM to only allow ORV use on public lands if certain conditions were met. 37 Fed. Reg. 2877 (1972); 42 Fed. Reg. 26959 (1978). Both Executive Order 11,644 and 11,989 are binding on BLM and enforceable as law. *Conservation Law Foundation v. Clark*, 590 F.Supp. 1467, 1477 (D. Mass. 1984) *aff'd*, *Conservation Law Found. v. Sec'y of the Interior*, 864 F.2d 954 (1st Cir. 1989) (finding that Executive Orders 11,644 and 11,989 are both "invested with the status of law" since they are in furtherance of the requirements of NEPA); *see also Utah Shared Access Alliance v. Carpenter*, 463 F.3d 1125 (10th Cir. 2006); *National Wildlife Federation v. Morton* 393, F.Supp. 1286 (D.D.C. 1975). Executive Order 11,644 mandates that the Secretary of the Interior issue regulations which require the designation of specific *areas and trails* on public lands to which ORV use will be limited.

After an initial set of regulations were overturned in *National Wildlife Federation v. Morton*, 393 F.Supp. 1286, 1292 (D.D.C. 1975), in 1979, BLM re-issued the ORV regulations in force today. 43 C.F.R. §§ 8340-42. Following the requirements of the EOs, the regulations requires that:

Subpart 8342—Designation of Areas and Trails

§ 8342.1

Designation criteria.

The authorized officer shall designate all public lands as either open, limited, or closed to off-road vehicles. *All designations* shall be based on the protection of the resources of the public lands, the promotion of the safety of all the users of the public lands, and the minimization of conflicts among various uses of the public lands; and in accordance with the following criteria:

(a) *Areas* and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.

(b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to

protect endangered or threatened species and their habitats.

(c) *Areas* and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

(d) *Areas* and trails shall not be located in officially designated wilderness areas or primitive areas. *Areas* and trails shall be located in natural areas *only if* the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.

(Emphasis added). These requirements are generally referred to as the "minimization criteria" and clearly apply to the designation of "areas" for motorized recreation on public lands as well as to designation of specific motorized routes.

Under the draft DRECP BLM proposes (in the preferred alternative) to designate approximately 2,724,000 acres in 31 SRMAs (or 33, the draft and Appendix L do not agree) and approximately 879,000 acres in eight (8) ERMAs in the Eastern Mojave area managed by the Needles Field Office (draft DRECP at II.3-303, II.3-367). The vast majority of these proposed new area designations would allow at least some motorized vehicle use in the recreation management area (*See* Appendix L SRMA-ERMA Parts 1-41). Therefore the proposed designation or redesignation of these areas as SRMA or ERMA are required to address and apply the minimization criteria. 43 C.F.R. § 8342.1.

The BLM's failure to address the minimization criteria is not just a technical flaw, it is a substantive violation of law and could significantly undermine biological conservation and other key resource values within the DRECP planning area. The proposed new recreation designations appear to lock-in area designations allowing motorized recreation in over 3 million acres of the plan area for the life of the plan (at least 25 years) because BLM has attempted to wrongly frame these designations as part of "mitigation" for impacts of renewable energy development on recreation, primarily motorized recreation. There is no showing in the draft DRECP or elsewhere that scope of the proposed SRMA and ERMA designations bears *any rational relationship* to the extent of the alleged "impacts to" recreation.

The proposed SRMA and ERMA long-term area designations will clearly impact the resources of these areas and allow significant impacts from ORV use to continue and most likely increase over the term of the plan with no analysis of alternatives to avoid such impacts, or minimization and mitigation measures to protect other public lands resources for ORV damage. In sum, the proposed SRMA and ERMA designations are inadequately analyzed under NEPA (as discussed below) and *the draft DRECP does not provide any analysis of how or whether these designations meet the required minimization criteria* in clear violation of BLM's own regulations and the executive orders.

The Draft states that for the SRMAs "SRMAs are proposed throughout the plan area, including as an overlapping land allocation on all existing "open" and "limited" use OHV areas." (Draft DRECP at II.3-366.) In discussions, BLM staff have implied that the overlap with areas

that have existing motorized recreation designations means that BLM did not need to analyze the overlay of the SRMA designation on these areas. However, even if some of the proposed SRMA that allow motorized recreation overlay existing "L" designation for motorized use (and that these SRMA designations were not clearly "redesignations" at minimum, as they are) there is no evidence that those older designations were made utilizing the minimization criteria . Perhaps more importantly, there is clearly significant new information regarding the status of species and other resources (including vegetation communities, soils, riparian, and water resources) in the planning area that must be considered (much of this information gathered as part of the draft DRECP process itself) and additional significant new information regarding the on-the-ground impacts to species and habitats from ORVs, route proliferation, that requires full consideration of the minimization criteria at this time. (See also detailed below discussion of impacts of ORVs on resources that should have been considered under both FLPMA, NEPA and the ESA). Moreover, there are changed circumstances since any earlier recreation area designations were made prior to including the threat of climate change and the expansion of industrial-scale renewable energy in the DRECP planning area that were required to be considered in any proposal to designate or redesignate recreation areas allowing motorized use on these public lands.

If BLM wants to move forward with sweeping new proposals for new recreation area designations on public lands in the DRECP plan area, it must provide public notice and a draft EIS that addresses all of the minimization criteria as well as analyzing alternative designations and mitigation impact to other resources due to these designations.

The proposed SRMA and ERMA designations should be removed from the proposed DRECP. If, however, BLM wants to propose sweeping changes to the current recreation management of these public lands, a new scoping notice must be provided to the public and a new draft EIS must be prepared that addresses all of the issues needed in proposing to designate or redesignate recreation areas on public lands including, but not limited to, all of the minimization criteria.

C. The Analysis of the Proposed SRMA and ERMA Plan Amendments Is Inadequate.

The draft DRECP contains virtually no environmental analysis of the impacts of the proposal to designating over 3.6 million acres of recreation areas on resources such as rare and common species, their habitats, key habitat connectivity, water resources, soils, air quality, etc. However it is well documented that motorized recreation impacts on fragile desert habitats is significant. Off-road vehicles (ORVs) recreation is one of the fastest growing outdoor activities and continues to increase in popularity. In California, ORV use has increased especially rapidly.

It has long been recognized that ORVs damage desert ecosystems and pose a significant threat to wildlife (Webb and Wilshire 1983; Brattstrom and Bondello 1983; Bury et al. 1977; Bury 1980; Bury and Luckenbach 1983; Busack and Bury 1974; Luckenback and Bury 1983; Lovich and Bainbridge 1999; Luckenbach 1975; Vollmer et al. 1976; McGrann et al. 2005; Ouren et al. 2007).

Numerous studies have investigated the effects of ORVs on lizards by comparing lizard abundance in areas with limited ORV use to areas with heavy ORV use. In most cases, lizard abundance was significantly lower in areas with high ORV use (Luckenbach 1975; Bury and Luckenbach 1983; Luckenbach and Bury 1983; Busack and Buyr 1974; Knauf 2001; Wright 2002; McGrann et al. 2006). Luckenbach and Bury (1983) surveyed multiple lizards in the Algodones Dunes area and found there was 1.8 times more species, 3.5 times as many individuals, and 5.9 times higher lizard biomass on control plots free of ORV use as compared to ORV plots. Similar results were found for mammals, arthropods (Luckenback and Bury 1983; Bury and Luckenback 1983), and native plants (Luckenback and Bury 1983; Vollmer et al. 1975; McGrann et al. 2005). Busack and Bury (1974) hypothesize that lizards are negatively affected due to reduced plant cover resulting in reduced invertebrate food sources, which in turn causes reduced food resources for lizards.

Other studies have specifically addressed ORV impacts to desert tortoise and its habitat. *See, e.g.,* Bury et al. 2002 (finding "An unused, natural plot had 1.7 times the number of live plants, 3.9 times the plant cover, 3.9 times the number of desert tortoises, and 4 times the active tortoise burrows than a nearby area used heavily by off-road vehicles (ORVs); these differences between the plots were all statistically significant.") A recent paper comparing areas in the West Mojave that had no ORVs to those with ORV routes found significant conservation improvements for the tortoise and its habitat in areas with no ORV routes. (*See, e.g.,* Berry et al. 2014; Berry et al. 2015 (abstract of ongoing research).)

Despite all of the available information, the draft DRECP completely fails to address these impacts – not as direct or indirect impacts of designation of SRMAs and ERMAs and not even as cumulative impacts along with impacts from renewable energy development (as they clearly are at minimum).

Large areas of the federal public lands within the DRECP plan area are currently designated as "limited" use areas for off-road vehicles where motorized vehicles can only be used on designated routes-these limited areas include Desert Wildlife Management Areas ("DWMAs") and Areas of Critical Environmental Concern ("ACECs") where conservation is currently identified to be a priority. However, BLM's own survey and monitoring work in the West Mojave shows that off-route travel is the norm, not the exception, in these areas. Information collected by the BLM in monitoring the motorized route network in the WEMO plan area shows very high levels of non-compliance and use of closed routes. In September 2012, the BLM provided the results of its "baseline monitoring" within the WEMO plan area. These baseline data focused on whether closed or otherwise unauthorized routes intersecting open routes were receiving motorized use. This monitoring data demonstrated that non-compliance with the route designations is extremely widespread. The BLM's Monitoring Results table establishes that of 1952 unauthorized or closed routes initially assessed, 1898, or 97%, were documented to have received some degree of unauthorized motorized use. (See Attachment 1.) Of those, 49% were documented to have received "heavy route use," defined as 26 tracks or more. (Id.) Of particular concern to the desert tortoise and other listed species such as the Lane Mountain milk-vetch, several areas which overlap with critical habitat and Desert Wildlife Management Areas ("DWMAs"), which are current ACECs had extremely high rates of noncompliance (including, but not limited to, Coolgardie [TMA-5], Rands, El Paso, Red Mountain [TMA-7]). In 2003, BLM did a "pilot test" repeat monitoring in the Black Mountain subregion. This test showed that the number of illegal routes or "incursions" and unlawful use had risen significantly in only one year. (*See* Attachment 2 at 8-9.)⁸

Moreover, it is well known that BLM has neither the staff nor the funding to adequately enforce the existing limitations on ORVs on these public lands and the DRECP proposes no new funding for BLM. A recent BLM Enforcement Report confirms widespread illegal ORV use over the 2014 Thanksgiving holiday weekend on fragile desert public lands in the west Mojave desert. According to the report, BLM rangers documented and in some cases cited illegal and destructive incursions into wilderness and "limited use" areas as well as "heavy illegal OHV use" in many areas. The BLM rangers admitted they do not have the resources to protect both public safety and the natural resources of the public lands from the destructive and illegal ORV activity. (*See* Attachment 3 (12/1//2014 Enforcement Report, Chief Ranger Chassie).

In light of this information the draft DRECP needed to analyze these foreseeable impacts of the actual ORV activity that will occur in the proposed SRMAs and ERMAs on conservation including the likely impacts to many listed species and designated critical habitat, and other sensitive resources from motorized off-road vehicle use in these areas. The agencies can not simply turn a blind eye to this reality and assume that off-road motorized use would only use the designated routes. This information shows that such assumptions are factually inaccurate and that non-compliance is significant and pervasive.

A 2009 GAO report found widespread habitat damage from reckless riding, mounting enforcement challenges and evidence of conflicts with other users on public lands. Their survey of federal land managers from across the country found:

- ORV damage has occurred on almost 20% of federal lands and in some areas as much as 80%.

- Conflicts are occurring with other trail users, private land owners, and irresponsible ORV users.

⁸ Shockingly, even with this information in hand, BLM has done nothing to protect the conservation areas that are being severely impacted as shown in these report, although BLM clearly has the authority and the duty to do so. The regulations also require BLM to close areas to ORVs where ORVs are causing or will cause negative impacts to soil, vegetation, wildlife, wildlife habitat, cultural resources, wilderness suitability, or threatened and endangered species. 43 C.F.R. § 8341.2(a). An area closed to ORVs under this provision can only be reopened to such vehicles if BLM "determines that the adverse effects have been eliminated and measures implemented to prevent recurrence." *Id.* Unfortunately, BLM's demonstrated lack of commitment to protect conservation areas calls into question one of the core mitigation strategies under the DRECP – the reliance on mitigation actions on public lands and conservation of key reserve areas and connectivity corridors on public lands. Without clear evidence that BLM will in fact protect such areas the draft DRECP's reliance on such future action by BLM is unwarranted and unfounded.

- Enforcement is the top challenge to ORV management. Nearly 3/4 of field unit officials cited staff resources for enforcement as a great challenge; nearly 2/3 cited enforcement as a great challenge.

- Current penalties do not deter reckless riding.

- A majority of land managers said they cannot sustainably manage ORVs, citing lack of human and financial resources.

The GAO recommended examining current penalty structures, as well as implementing better planning at BLM and USFS, and enhancing communication with the public. (full report available at <u>http://www.gao.gov/assets/300/291861.pdf</u>)

In addition, the Center recently compiled information about impacts of ORVs in other areas of the desert particularly the Flat-Tailed Horned Lizard Conservation Areas which are ostensibly managed by BLM to conserve this imperiled species. (Center 2014) which has continued to decline and is now a candidate species under CESA).



Figure 15. Illegal off-road vehicle use in Yuha Desert and East Mesa Management Areas. Images obtained from satellite imagery via Google Earth. Images were captured between 2008 and 2012 depending on the region.



Figure 16. Illegal off-road vehicle use within Management Areas and impacts in Ocotillo Wells Open Area. Images obtained from satellite imagery via Google Earth. Images were captured between 2008 and 2012 depending on the region.

(Center 2014; FTHL CESA Petition. Figures 15 and 16.) The draft DRECP should have considered ways to support existing conservation commitments and efforts to reign in ORVs and

effectively put resource protection in place. For example, reducing ORVs access to conservation areas would allow BLM rangers to actually patrol them rigorously and enforce compliance. The Draft DRECP should also have considered closing sensitive habitat areas to ORV use and a funding mechanism to provide needed revenues for coordinated federal, state, and local law enforcement to enforce the conservation promised in the draft plan. Unfortunately, the draft DRECP plan as written completely fails to address needed changes in ORV management and misses the opportunities to truly enhance conservation on public lands in the California desert.

Nothing in the DRECP draft shows that this situation regarding lack of on-the-ground implementation and enforcement of limitations on ORV use would improve under the proposed plan and specifically in light of the proposed addition of sweeping new SRMAs and ERMAs. The unlawful but pervasive route proliferation by ORV recreation causes habitat destruction, extreme habitat fragmentation, soil destruction, and impairs air and water quality throughout the plan area already—nothing in the draft DRECP shows that this situation would improve rather than continuing to deteriorate under the proposals.

The Draft also contains no alternatives to the proposed SRMA designations and the only alternative to the ERMA designation is not to designate these areas under Alternative 1. This clearly fails to meet the NEPA requirements that a range of alternatives be considered (as well as the FLPMA requirements that alternatives to proposed plan amendments be considered).

D. The Durability MOU and Proposed Use of Additional "Tools" To Provide Mitigation On Public Lands are Inadequate and the draft DRECP Ignores Key Opportunities for Conservation Created by Omnibus Legislation Allowing Permanent Termination of Grazing Allotments in the CDCA

As detailed in early comments and above, the Durability MOU and the commitments therein are far too vague to provide the needed mitigation certainty for the NCCPA or the ESA §10. Unfortunately, to date the BLM has provided little more than hollow promises of conservation without firm commitments to the needed monitoring and enforcement actions for the alleged "conservation management actions" on public lands. Moreover, without dedicated funding even the best of intentions are unlikely to be fulfilled. The draft DRECP should have looked at creative ways to increase enforcement on public lands including an independent fund to hire fish and wildlife enforcement officers and personnel who could be deputized by both state and federal agencies to ensure protections for species and habitats are enforced across the DRECP plan area on both public and private lands.

The draft DRECP also completely ignores significant conservation opportunities that could be gleaned from permanent termination of grazing allotments within the CDCA under the 2012 legislation. 43 USCS § 1781a. (P.L. 112-74). While such actions could not provide all of the needed conservation, they can provide significant gains and the Center appreciates the work done by BLM to prepare a revised Instruction Memorandum regarding these donations and terminations. IM No. CA-2015-009. This IM is a vast improvement on earlier guidance although the Center continues to be concerned that there remain some areas in which BLM's treatment of various terminated, relinquished and retired allotments is uneven and confusing, and disagrees with the use of partial terminations that go beyond the statutory language.

The draft DRECP should have looked at ways to advance such relinquishments and development of for an independent agency to manage the NCCP/GCP/HCP or mitigation bank that could realize these conservation gains as quickly as possible. While some relinquishments have been accomplished to date, the Center is concerned where the termination has benefits for multiple species these are not being fully realized due to the case by case use of the allotment retirements as mitigation for individual projects and impacts to only a limited number of listed species—the DRECP could provide a method for capturing the additional conservation benefits and its failure to address this question is baffling. In addition, while BLM has stated that it is committed to managing the forage on the relinquished allotments for wildlife as required under the statute, it has to date failed to show that it will affirmatively do so and will appropriately designate and map these areas to ensure compliance. Because the forage is *permanently* allocated to wildlife, BLM will need to ensure that activities that would destroy or impair the forage allocated to wildlife do not occur in the future. An independent DRECP agency and/or mitigation bank may be a far more efficient way to ensure these key conservation gains are garnered and lasting than simply noting them in future BLM plan amendments and mapping. The Center urges the agencies to further consider how to integrate the conservation gains from permanent grazing allotment terminations in the CDCA into the DRECP conservation strategy.

		Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment				
						As part of the DRECP's Biological Goals and Objectives Recovery Plan goals for federally listed species that occur within the DRECP plan area and that have Recovery Plans need to be incorporated including: • California condor • Inyo California towhee • Least Bell's vireo • Southwestern willow flycatcher • Yuma clapper rail • Desert tortoise • Arroyo toad • Desert slender salamander • Desert pupfish • Mohave tui chub • Owens pupfish • Owens tui chub • Amargosa niterwort • Ash Meadows gumplant • Bakersfield cactus				
						Carbonate plants				

V. Detailed Chart of Specific Comments

		Comments							
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
	Exec. Summary					Table 3. Numerous species are known to occur in areas in and around the DFAs and some of them are already being impacted by renewable energy projects. Yet they are missing from the covered species table including: • Arroyo toad • Barefoot banded gecko • Coast horned lizard • American peregrine falcon • Bald eagle • Bank swallow • Elf owl • Gilded flicker • White-tailed kite • Hoary bat • Tehachapi pocket mouse • Western mastiff bat • Western red bat • Desert kit fox • All the carbonate endemic plants • Parish's alkali grass • Parish's phacelia • Tracy's eriastrum • White margined beardstongue These species had previously been considered as covered species in the planning area, and it is unclear why they are no longer being considered as covered species.			
	II.3.1.2. 5.3			II.3- 39-40 II.3-		The CMA addresses only a subset of linkages & connectivity areas and only in the Riverside-East SEZ area. Based on Figure H-2 in Appendix H, the connectivity areas and linkages are actually much larger than noted in the text, covering dozens of miles. In addition Figure H-2 in Appendix H identifies dozens of connectivity areas and linkages located throughout the DRECP Plan area, yet they do not seem to be included in the CMA. An improved CMA for linkages and connectivity, needs to be more clearly identified and applied to other areas where key connectivity and linkages are located.			
				40-41		proposes idealistic solutions to impacts to these			

		Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment				
						important processes that have yet to be proven feasible and caveat protections with "to the extent feasible". These CMAs therefore provide no assurances that important Aeolian processes are retained. For example, "Buildings and structures within the site will take into account the direction of sand flow and <i>to the</i> <i>extent feasible</i> build and align structures to allow sand to flow through the site unimpeded. Fence will be designed to allow sand to flow through and not be trapped." <i>Emphasis added</i> . Evidence suggests that fences designed to provide security for projects also prevent sand flow http://docketpublic.energy.ca.gov/PublicDocuments/0 <u>9-AFC-</u> <u>07C/TN201075_20131029T171844_Exh_3064_Chain_Li</u> nk_Sand_Fence_photo.JPG				
				II.3- 42		The CMAs state "Siting and designing Covered Activities will avoid high bird and bat movement areas" yet these areas are not identified nor is "high bird and bat movement areas" defined spatially or temporally. Vague statements fail to provide necessary assurances to protect aerial habitat for these species. Indeed little information is provided on migratory pathways, and the DRECP ignores Important Bird Areas identified by Audubon Society as a metric for evaluating avian use.				
				II.3- 48		Table II.3-6 Riparian and Wetland Avoidance and Setbacks – It is unclear how the setbacks were determined. This CMA also fails to address the fact that upstream impacts affect the downstream reaches of the sensitive linear features. It also fails to address conservation of the effects of "sheet flows" on the braided structure of some of the plant communities included in the Riparian Natural Communities				
	Appendix C		.03	C-23		 The flat-tailed horned lizard (FTHL) Plan-Wide Biological Goals and Objectives are incomplete for the following reasons: Improvements needed in the Goals and Objectives. The DEIS/R basically adopts the Range-wide Management Strategy (RMS) for the FTHL which was first adopted and implemented in 1997 and revised in 2003. Despite 18 years of implementation, the FTHL 				

		Comments							
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
						 populations continue to decline. In response to data in our petition, this year, the California Fish and Game Commission accepted the FTHL as a Candidate species under the California Endangered Species Act based on habitat losses, threats and population declines. Clearly the RMS as implemented is inadequate to avoid population declines much less recover populations. Therefore the Plan-Wide Biological Goals and Objectives and the Stepdown Biological Goals and Objectives are inadequate to assure further population declines. Additional measurable goals and objectives need to be included that address increased protection of habitat including O Utilize standardized monitoring techniques capable of detecting population trends throughout FTHL range. Monitoring for FTHL has been inconsistent and methodologies have been diverse, making data sets incomparable. Currently resources are being devoted to survey efforts that are unable to accurately determine population trends. Only methods capable of developing useful trend data should be employed, meaning demographic surveys sites should be more numerous and randomly distributed. The original survey methods described in the RMS (FTHLICC 2003) are likely to yield more powerful results than current methods. The Objectives need to address a common and regular monitoring scheme to detect changes in the population levels. Further limit off-road vehicle use within Management Areas. All of the FTHL MAs within California border an ORV open area, indicating there is already a large amount of land 			

	Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
						0	available for ORV recreation. Given the considerable threats that ORVs and vehicles pose to FTHLs, ORV use should be prohibited within some or all of the MAs. Since illegal route proliferation and trespass of ORVs is common, better enforcement also required to ensure FTHLs, and the harvester ant populations they rely on, are not negatively impacted by ORV use. Explore using appropriate fencing to keep FTHLs off of roads and limit ORV trespass. FTHL fences are already used to keep lizards off of construction sites and access roads (FTHLICC 2003, Appendix 7), and additional fencing could be applied to existing roads and highways. Additional research should be devoted to developing strategies, potentially including fences, to limit illegal ORV trespass. In any case where fences are used, care should be taken to maintain connectivity and eliminate negative impacts to species. Road underpasses have been used successfully for desert tortoise and other species and may be appropriate for FTHL (and other species) to minimize road mortality while ensuring connectivity. Properly constructed fencing may also alleviate some of the edge effects associated with development. Prohibit further development in the MAs are nearing the one-percent development cap, and this does include the footprint of the edge effects of these developments. FTHL habitat in the MAs is already severely fragmented and degraded, and further development should not be permitted,		

		Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment				
						0 0 0 0	including renewable energy development and overhead transmission lines Indeed additional route closures and proper restoration need to be implemented to reduce densities and alleviate effects from habitat fragmentation. Reduce edge effects by burying transmission lines. While the burial of transmission lines causes temporary surface disturbance, it reduces perching sites for avian predators which are a documented mortality factor for FTHL. Conduct additional research to understand the effectiveness and most appropriate design of highway culverts in natural FTHL populations; based on this research, modify existing culverts and install new culverts to increase gene flow between occupied habitat areas. Culverts may provide essential genetic connectivity between populations separated by heavily trafficked, multi-lane highways. To our knowledge, no studies have investigated the effectiveness of culverts under natural conditions (see ADOT 2007 for controlled, <i>ex situ</i> study). More aggressive actions should be taken to control nonnative plants and restore damaged ecosystems. Control procedures and restoration efforts should be explored (see Steers and Allen 2010). Management efforts should continue to: acquire private lands where possible, especially within the matrix of public lands. Eliminate pesticide spraying within			

		Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment				
						0 0 0	Monitor Argentine and other invasive ant populations along FTHL habitat boundaries to prevent potential invasions. Although there is no evidence that Argentine ants have invaded FTHL habitat currently, other horned lizards in the regions have been negatively affected (Suarez and Case 2002) and expanding land use changes increase the risk of invasion (Barrows et al. 2006). Minimize water availability along the edges of development/FTHL habitat to reduce Argentine ant populations. Limit use of off-road vehicles in border area where possible. Use of remote video surveillance systems (RVSS) to monitor illegal activity along the U.S Mexican border, may have the capacity to effectively monitor more land while reducing off-road vehicle use by Border Patrol. Care should be taken to prevent any increase in predation to FTHL that may be associated with the construction of surveillance towers and use of those structures by predators, i.e. potentially installing anti-perching devices. (Avery and Genchi 2004; Seamans et al. 2007). Efforts should be taken to improve lizard translocation success while exploring alternative mitigation techniques capable of reducing mortality associated with development. Relocating FTHLs results in poor survivorship (FTHLICC 2007), thus more research is needed Better coordination with Counties and adjacent HCPs. While the DRECP could provide a forum for tracking management and population dynamics of FTHL on public and private lands in			

	Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
							California including the counties of Imperial, San Diego and Riverside, representation from the CVMSHCP and the FTHLICC. It also provides the opportunity for cooperation, to share "lessons learned", range-wide monitoring, range-wide enhancements and other range-wide activities would be more efficiently implemented with all interested parties at the same "table". Expansion of current and establish new Management Areas for Connectivity. Currently only 36 percent of the FTHL's current range within California is protected by four management areas (MAs). Suitable occupied habitat occurs outside of the current MAs, and needs to be protected. In addition to the proposed expansion areas mentioned in the DRECP (East Mesa Expansion, West Mesa, Yuha North Expansion – see below comments). Because the FTHL would benefit from addition MAs and connectivity areas the DRECP needs to incorporate additional areas: o The area between West Mesa MA and Yuha Desert MA northern expansion. This region is currently predominantly public lands managed by the BLM as the Plaster City Open Area. A connectivity corridor is crucial to maintain genetic connectivity and integrity throughout the western population. Therefore the DRECP needs to establish a portion of this area needs to be managed for FTHL benefit by		

		Comments							
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						 protecting habitat for FTHL occupancy and connectivity. Portions of the Ocotillo Wells State Vehicular Recreation Area (OWSVRA) Research Area (RA). Currently the Borrego Badlands MA in the southern portion of Anza Borrego State Park is isolated from the rest of the FTHL populations by the OWSVRA, which is an open area, which is in the current FTHL range. Part of the RA needs to be established as a connectivity corridor and is crucial to maintain genetic connectivity and integrity throughout the western population. Objective FTHL1.2 proposes the Yuha basin expansion, but that expansion area is not addressed in Appendix L, so it is impossible to identify what the expansion proposal actually is – area-wise as well as management-wise. The West Mesa Expansion is not mentioned in the Objective, however it is identified in Appendix L, but as with the Yuha Basin Expansion, the West Mesa Expansion is not actually described in Appendix L. 			
	Appendix C					For those species with recovery plans, the recovery objectives and criteria need to be incorporated into the Biological goals and objectives. For example, on the biological goals and objective for the Yuma clapper rail (page C33-34) fall woefully short of that this highly imperiled bird needs to prevent further population declines. While the most recent revision of the Recovery Plan9 is draft, the recommendations in it should be modified to address issues within the California part of the rails' range and includee in the			

⁹

http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2010&federalRegister.page=669 7&publication=FR

		Comments							
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
						 DRECP as part of the Biological Goals and Objectives as follows: Documentation of a stable or increasing trend for numbers of rails in the DRECP as shown through annual rail surveys based on maintaining a statistically secure minimum population size determined by USFWS in conjunction with species experts. Protection of sufficient breeding and wintering habitat to support the desired population size from identified threats and allow for connectivity of habitat. Evaluation of potential migration pathways between the Colorado River, Salton Sea, and other habitat within the plan area that provide for connectivity and that supports population viability. identification and implementation of management strategies to protect stop-over habitats. Protect and secure for the long-term adequate water supplies to support rail habitat at current levels throughout the plan area. Completion of an assessment of the degree of threat from all the renewable energy technologies to rails and implementation of management actions to reduce or eliminate this threat at all project sites. 			
	IV		7	243		Table IV.7-49 Plan Wide Impact Analysis for Mohave Ground Squirrel Important Areas Preferred Alternative. The "Total Impact Area" do not add up for each "Mohave Ground Squirrel Important Area Type".			
	IV		7	243		We could not locate a description of the four types of "Mohave Ground Squirrel Important Areas" referenced in Table IV.7-49 or how they were determined or identified. No maps are provided as to where these areas actually are. Indeed Table IV.7-49 shows a substantial reduction in conservation lands for the			

		Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment				
						Mohave ground squirrel from the existing MGS Conservation Area established under the West Mojave Plan (see comment below).				
	Appendix H					One key flaw of the connectivity and linkage "design" in Figure H-2, Appendix H is that it fails to connect the Mojave Desert in California to conservation in Nevada or the Colorado Desert in California to Mexico, and apply CMAs to assure that these important connections are retained – wildlife do not recognize state and national boundaries.				
	Appendix H			H-27		Table H-1 Potential Available Golden Eagle Take. The DRECP has vastly miscalculated the allowable take for golden eagles. Under the presented scenario – the take of 15 eagles per year over the life of the plan would allow more eagle mortalities (15 eagles annually over 25 years = 375 eagle mortalities) than the number of eagles that are estimated to occur in the plan area (230)! And that's just mortalities from NEW covered activities and not the cumulative impacts to golden eagles from other mortality sources including existing projects. Under this proposed scenario, the DRECP is an extinction plan for golden eagles in the California deserts.				
				H-31		The "Advanced Conservation Practices" (ACPs) are a step towards avoidance of eagle mortalities, but are unproven. Because the DRECP is a conservation plan, it needs to identify, set aside and manage areas specifically for eagles that eliminate the hazards known to cause mortalities in eagles.				
				H-42		If eagles mortalities are being caused by powerlines or the powerline is "high risk", it is the responsibility of the company that owns the powerline to retrofit the powerline. Powerline retrofit is not a mitigation measure to offset impacts to eagles from other development.				
				H-45		Exhibit H-2 Conceptual Eagle Take Authorization Process is unreadable.				
				H-58- 59		Table H-4a Compensation Ratios for the Impacts1 of DRECP Covered Activities in DFAs and Table H-4b Compensation Ratios for the Impacts1 of Transmission Covered Activities in the DRECP Plan-Wide Reserve Design Envelope. It is unclear what is meant by				

	Comments							
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment		
						Mohave ground squirrel Key population Centers and expansion areas, and why there are different mitigation ratios. If they are key areas, 5:1 mitigation is requisite. For desert tortoise is it unclear why only the areas around Ord-Rodman and federally designated critical habitat would have higher mitigation ratios – all occupied habitat for tortoise should have increased mitigation requirements in light that animals will be displaced.		
				H-61- 62		We disagree with the proposal that "Conceptually, resources that are well conserved by the Plan-wide reserve design would require less compensation for impacts within Development Focus Areas (DFAs) to meet their Plan-wide Biological Goals and Objectives (BGOs) than less well-conserved resources." The plan- wide reserve design does not assure that resources have durable conservation or are protected from non- covered activities in the "conserved" areas. It inaccurately assumes that existing conservation is available to offset new impacts – this is a net loss of conservation and at odds with the goals of creating a conservation plan. To reduce the mitigation ratios based on the illusion of conservation in Table H-5 Base Compensation Ratio Scaled by Plan-Wide Species Habitat Conservation is not acceptable.		
				H-65		H.3.3 Compensation for the Impacts of Covered Activities Operations on Covered Birds and Bats – this whole strategy is half-baked. It appears that "compensation" at best is 1:1, which results in a net reduction in species/nesting habitat. However, Table H- 7 Population Debt in Comparison to Compensatory Restoration Credits for Covered Birds is unclear and confusing. It is also confusing how the "debt" would be calculated based on monitoring (no monitoring scheme is provided).		
	Appendix I					Key to any successful HCP/NCCP is the funding. Appendix I fails to clarify how the anticipated costs were calculated. Because of that, it appears they are woefully inadequate. For example in the Table I-24 NPV of Mitigation Cost Estimates Using Preferred Alternative Acreage and Lowest Cost First Compensation Acreage Selection Criteria		

	Comments					
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment
						 the high and low cost columns are switched – just as an editing note. the table fails to identify the timeline for the activity cost – is that per year, per decade, for the life of the plan. The cost for desert tortoise range-wide population monitoring is \$3.6 million. If this cost is for the life of the 25 year plan, that is only \$144,000 per year – wholly inadequate. Real costs for desert tortoise population monitoring was documented at \$1.5 million <i>per year</i> ¹⁰ in 2002 – granted that was over the whole range of the listed species, however, the California deserts are a major portion of the species range and 13 years have passed since this
	Appendix I					The appendix completely underestimated desert tortoise range-wide population monitoring is the most expensive monitoring to be noted in Table I-24. It is most likely that the actual costs of monitoring other species/landscape and ecological processes and natural communities, as required by the DRECP are equally as underestimated and therefore will be underfunded.
	Appendix I					Even with the significant underestimation of costs of monitoring, Appendix I – entitled Cost and Funding - fails to identify how the plan implementation costs, including monitoring, will actually be funded.
	Appendix L					Appendix L identifies that the preferred alternative proposes numerous new Areas of Critical Environmental Concern (ACECs). However it fails to provide information on a number of proposed new ACECs including the following: • Crater Mountain • Chuckwalla Extension • Chuckwalla Extension • Chuckwalla Mountains Central • Chuckwalla to Chemihuevi Linkage • Joshua Tree to Palen Corridor • Ivanpah Expansion • Shadow Valley Expansion • Lake Cahuilla Expansion

10 http://www.gao.gov/new.items/d0323.pdf

	Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
						West Mesa	a Expansion		
						 Yuha Basin 	North Expan	nsion	
						Cadiz Corri	idor		
						Chemehue	vi Expansior	1	
						 Pisgah Exp 	ansion		
						 Piute-Fenn 	ner Infill		
						Horse Can	yon Expansio	on	
						 Jawbone E 	xpansion		
						No maps or acreag	es. much les	s manager	nent scenarios
						are provided. The	, refore it is in	npossible to	o evaluate if
						indeed appropriate	e conservatio	on is propo	sed.
	Appendix					The description of	Existing ACE	Cs in the p	referred
	L					alternative do not	accurately re	eflect the e	existing
						conditions. The fo	llowing ACE	Cs as desigi	nated under
						previous plans are	larger than t	he Preferr	ed Alternative
						(or the "No Action"	" alternative) and no ra	tionale is
						provided as to why	the ACEC h	ave been r	educed:
						Existing Area of		CDCA	Reductio
						Critical		+ Plan	n in
						Environmental	DRECP	Amend	existing
							ACEC (acres) ¹¹	-ments	
						Christmas	(40105)	(40100)	(46/65)
						Canyon	3400	3444	44
						Fossil Falls Last Chance	1600	1667	67
						Canyon	5100	5913	813
						Rose Spring	800	859	59
						Alligator Rock	6800	7726	926
						Chuckwalla	2200	2222	70
						Valley Duries	2200	17/2	13
						Kingston Range	18900	10620	43 720
						mesquite Lake	6700	6731	.31
						Mountain Pass	0,00	0101	0.
						Dinosaur	600	600	20
						San Sehastian	000	020	20
						March	6500	6565	65
						Black Mountain	51200	61806	10606
						Calico Early			-
						Man Site	800	898	98
						Cronese Basin	8500	10266	1766
						Denning	400	465	65

	Comments								
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment			
						Springs			
						Mesquite Hills/Crucero Parish's	5000	5002	2
						Phacelia Red Mountain	500	898	398
						Spring	700	717	17
						Salt Creek Hills Carbonate	2200	2205	5
						Endemic Plants	5000	5155	155
						Juniper Flats Mojave	2400	2528	128
						Monkeyflower Upper Johnson Vallev Yucca	2600	36424	33824
						Rings	300	353	53
						Dead Mountains Whipple	27200	28559	1359
						Mountains	2800	3154	354
						Dos Palmas	8300	15157	6857
						Whitewater	14000	16381	2381
						Amboy Crater Mojave Fringe-	600	679	79
						toed Lizard Bendire's	22190	28193	6003
						Thrasher	9900	11700	1800
						DTRNA Jawbone/Butter	22000	25695	3695
						bredt Mojave fishhook	153,200	187486	34286
						cactus Fremont –	600	628	28
						Kramer Superior -	311500	257400	54100
						Cronese Mohave Ground Squirrel	404800	403800	1000
						Conservation		172671	
						Area	1669000	2	57712
						TOTAL			219640
	Appendix					Management Areas	s have alrea	dy been es	tablished for
	L					the flat-tailed horn	ed lizard (FT	HL), includ	ing East and
						West Mesas, Yuha	Desert and a	a Research	Area in
						Ocotillo Wells State	e Vehicular F	Recreation	Area. The
						preferred alternativ	ve proposes	designatio	n of ACECs for
						the East and West I	Mesa, Yuha	Desert and	undescribed
						Yuha Basin North E	xpansion (se	ee above co	omments).

	Comments					
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment
						The preferred alternative also proposes a 1% development cap in these proposed ACECs. However it fails to identify that the existing Management Areas already have a 1% development cap. Some of the Management Areas very close to achieving that maximum development and all Management Areas have had development in them. The DRECP needs to clarify that the previous acres of development that has occurred since the establishment of the Management Areas need to be included as part of the "baseline" development and is included in the newly proposed 1%
	Appendix L Part 7_6					development cap. The Algodones Dunes is not apart of the DRECP, yet it is the North Algodones Dunes is included as an ACEC with a 1% development cap. However, the area of the ACEC is all federally legislated Wilderness, so no development can occur here anyway.
	GIS layer					Within the FTHL Research Area which links the West Mesa and the Borrego Badlands Management Areas, occurs a checkerboard of DFA lands and undesignated lands. In order to keep the remaining FTHL habitat connected, conservation set asides need to be established in this Research Area.
	Appendix L					The existing ACECs established for desert tortoise under CDCA plan amendments have an existing 1% development cap (See WEMO, NEMO, NECO). While we recognize that the preferred alternative would lower the development cap to 0.5%, the DRECP needs to clarify that the development of acres of desert tortoise habitat that have occurred since the establishment of the ACECs need to be included as part of the "baseline" development and is included in the newly proposed 0.5% development cap. Without this clarification is it impossible to identify
	Appendix L					For several existing ACECs including Bendire's thrasher, the Mule McCoy Linkage and other, there are different development caps proposed for different parts of the ACEC – anywhere from 1% to 0.5% to 0.1%. However, no maps are provided that show the boundaries of these different development cap areas, nor do the tables provided in Appendix L provide the acreages for the different development cap areas. Therefore it is

	Comments					
Comment Number	Volume	Chapter	Section #	Page #	Paragraph	Comment
						impossible to determine where the caps would be applied and how many acres of development would be allowed in these ACECs.
	GIS layer					 The Preferred Alternative DFA in the Riverside East SEZ still fails to identify the two north-south wildlife connectivity corridors required in the Solar PEIS. It fails to incorporate the existing corridor established under NECO – Desert Tortoise Connectivity Wildlife Habitat Management Area. The GIS layers have the wrong boundaries for Red Rock Canyon State Park
	Appendix L 11_7					The maps for the existing Mojave fringe-toed lizard ACEC are the wrong maps (Marble Mountains Fossil Bed Maps are included instead). As noted above, the ACEC is proposed to be reduced from the ACEC established under WEMO without any explanation, and it is unclear where the habitat will be excised from the existing ACEC.
						Conservation for the Mojave fringe-toed lizard needs to include additional ACECs that protect habitat outside of the ACEC establishe in WEMO. As part of that additional protection, the necessary sand transport corridors/dune systems need to be identified and designated as ACECs as well. The proposed DFA in the Riverside East SEZ fails to safeguard the existing sand transport corridor and dunes systems that originate in the Pinto Basin in Joshua Tree National Park and sweep across the Chuckwalla Valley to the edge of the agricultural area near Blythe. These systems are all associated dune and blowsands are habitat for the Mojave fringe-toed lizard.
	Appendix L					The Desert Tortoise Research Natural Area ACEC is proposed to be reduced, and in fact the GIS layer indicates that certain areas of the ACEC are included in DFAs. We strongly oppose this conservation rollback for the following reasons 1) the DTRNA has been a long- term conservation investment through public and private efforts to secure important habitat for desert tortoise, including through mitigation acquisitions for previous development projects; 2) the DTRNA is the only location reported to have increasing populations of desert tortoise12 throughout the listed populations

	Comments					
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						range. Therefore, the management of this area is the blueprint for desert tortoise recovery. No impacts to this existing conservation area should be allowed.
	Appendix L 12_9					Two ACECs established for desert tortoise recovery in the West Mojave - Fremont Kramer and Superior- Cronese are both proposed to be reduced collectively by 55,100 acres from their existing size although no justification for the reduction is provided. It also is not clear on the maps where the reduction in the ACEC is proposed. We oppose reductions in any of the existing conservation areas including in these two critical recovery areas for the declining desert tortoise. In addition these areas also include some of the southern parts of the existing Mojave ground squirrel conservation area.
	Appendix L 12_1					The Big Rock Creek Wash is proposed as an ACEC, yet most of the proposed ACEC is covered by a proposed DFA, which obviously defeats the purpose of the ACEC.
	Appendix L 12_2					Brisbane Valley Mojave Monkey Flower Expansion is of benefit not only to the Monkey flower, but also the robust desert tortoise population. We note however that Appendix L does not include the existing Mojave Monkey Flower ACEC which was established under WEMO and is much more extensive than the Bristol Valley.
	Appendix L 12_3					The proposed Caliente Creek area is identified for "wildlife allocation", yet there are no real protections through development caps or other mechanisms to assure this allocation.

VI. Conclusion

The Center appreciates the opportunity to provide these comments in the draft DRECP. We will continue to remain actively involved throughout all phases of the planning effort. Our goal in this regard is to assist the DRECP in developing the best possible plan in a timely manner that provides effective, long-term protective policies for preserving our biological resources in the California deserts while streamlining the permitting process for renewable energy projects that are proposed in environmentally suitable areas. Unfortunately the draft DRECP fails to meet many of these goals. It also fails to provide sufficient identification and analysis of impacts of the proposed alternatives as part of the environmental review under NEPA and CEQA, the

proposed plan amendments fail to meet the requirements of FLPMA, and fails to explain how, and whether, the proposed conservation plans would meet the legal requirements of the NCCPA and ESA. We look forward to reviewing a substantially revised draft DRECP in the future that cures these significant shortcomings.

If you have questions or concerns about our comments please do not hesitate to contact us.

Sincerely,

16 3 Center

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Lin Thelalay

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Attachments:

Attachment 1: BLM, West Mojave (WEMO) Plan Route Monitoring Results, December 2012 (also available at <u>http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/west_mojave_plan_upda</u> tes.Par.39996.File.dat/Exhibit%20B%20-%20WEMO%20Route%20Monitoring%20Results%20Filed%2012_21_12.pdf)

- Attachment 2: BLM, Pilot Test Summary, West Mojave Plan Area Off-Highway Vehicle Monitoring Protocol, April 29, 2013 (also available at <u>http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/west_mojave_plan_upda</u> <u>tes.Par.57813.File.dat/Pilot_Test_Summary_062813.pdf</u>)
- Attachment 3: FIELD REPORT from Chief BLM Ranger Patrick Chassie, Barstow Field Office, Dec. 1, 2014 (also available at http://www.biologicaldiversity.org/programs/public_lands/offroad_vehicles/pdfs/Field_Report_From_Chief_BLM_Ranger_Patrick_Chassie.pdf)

Attachment 4: Letter to Secretary Jewell re Algodones Dunes.

		We	est Mojav	e (WEMO)) Plan Ro	ute Moni	toring Resul	ts – Dece	mber 2012 1	/		
Subregion TMA	Miles of Open Route <u>7</u> /	Non- designated Routes <u>2</u> /	Light Route Use <u>5</u> /	Moderate Route Use <u>5</u> /	Heavy Route Use <u>5</u> /	Truck Routes	Motorcycle Routes	Quad Routes	Routes Naturally Rehabilitating <u>3</u> /	Routes not Naturally Rehabilitating	New Routes <u>4</u> /	Old Routes
TMA-1												1
Afton Canyon	117	6	1	0	5	2	1	3	6	0	6	0
Broadwell Lake	198	20	8	12	0	20	0	0	0	N/A	17	3
Barstow East	0.1	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ТМА-2		1		-								
Sierra	234	23	11	5	7	23	0	0	13	10	0	23
Darwin	98	11	6	3	2	11	0	0	5	6	0	11
North Searles	120	14	2	9	3	13	0	1	1	13	0	14
South Searles	132	17	1	9	7	11	4	2	1	16	1	16
ГМА-3		11										-
Juniper Flats	98	215	61	115	39	38	126	51	73	142	142	73
Rattlesnake Canyon	214	16	7	5	4	7	1	8	0	5	5	11
Morongo Valley	8	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
loshua Tree	138	88	46	25	17	56	2	30	0	N/A	41	47
Needles South	73	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wonder Valley	89	45	2	12	31	43	0	2	0	0	35	10
Needles South	73	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TMA-4					-	-						
Jawbone	264	135	51	31	53	29	38	68	21	114	0	135
Middle Knob	88	22	3	4	15	10	9	3	3	19	0	22

Subregion - TMA	Miles of Open Route <u>7</u> /	Non- designated Routes <u>2</u> /	Light Route Use <u>5</u> /	Moderate Route Use <u>5</u> /	Heavy Route Use <u>5</u> /	Truck Routes	Motorcycle Routes	Quad Routes	Routes Naturally Rehabilitating <u>3</u> /	Routes not Naturally Rehabilitating	New Routes <u>4</u> /	Old Routes
TMA-5												
Cronese Lake	205	35	7	10	18	20		14	0	N/A	30	5
Calico Mountain	91	102	23	54	25	26	9	67	0	102	80	22
Mitchel Mountain	58	22	7	14	1	17	2	3	0	0	22	0
Coolgardie	180	274	61	157	56	108	79	87	0	0	274	0
Harper Lake	121	10	10	0	0	10	0	0	0	0	10	0
Black Mountain	202	54	22	18	8	14	10	30	0	0	54	0
Fremont Peak	238	64	14	28	22	35	18	11	0	N/A	59	5
ГМА-6									1.000	1000		
El Mirage	105	43	19	15	9	17	15	11	0	N/A	42	1
Kramer Hills	249	52	14	24	14	28	10	14	0	N/A	52	0
fron Mountain	79	20	5	11	4	15	3	2	0	N/A	20	0
ГМА-7												15.0
Rands	132	109	32	30	47	41	42	26	5	104	0	109
El Paso	316	344	35	48	261	302	29	13	15	329	0	344
Ridgecrest	187	273	0	4	269	125	15	133	0	273	0	273
Red Mountain	316	322	18	145	159	90	141	91	43	279	2	320
ГМА-8												
Stoddard Valley <u>6</u> /	142	5	0	0	5	5	0	0	0	N/A	5	0
Ord Mountain	177	18	1	5	12	1	9	8	0	N/A	18	0
ohnson Valley <u>6</u> /	24	8	6	2	0	1	4	3	0	N/A	0	0
Pisgah Crater	39	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	West Mojave (WEMO) Plan Route Monitoring Results – December 2012 1/											
Subregion TMA	Miles of Open Route <u>7</u> /	Non- designated Routes <u>2</u> /	Light Route Use <u>5</u> /	Moderate Route Use <u>5</u> /	Heavy Route Use <u>5</u> /	Truck Routes	Motorcycle Routes	Quad Routes	Routes Naturally Rehabilitating 3/	Routes not Naturally Rehabilitating	New Routes <u>4</u> /	Old Routes
Newberry Rodman	150	7	4	5	3	0	4	0	4	N/a	5	2

1/ The units in the columns are in number of routes.

2/ The number of non-designated routes is the total number of routes that intersect a designated route. The number is based on field observations. It includes some routes that are authorized for use (specific purposes), e.g., right-of-way or other authorized use, but are not open to public motorized vehicle use. The routes with authorized uses will be removed from this total after checking for all authorized use files.

3/ A trail was considered to be naturally rehabilitating if vegetation is growing back into the trail tread.

4/ A trail was considered new if the trail did not appear to be well established and a substantial amount of natural vegetation was present and the tracks appeared to have been recently traveled across.

5/ Non-designated routes evaluated for level of use: Light (1-10 tracks); Moderate (11-26 tracks); Heavy (26 track or more)

6/ Open Areas

<u>7</u>/ Routes in the Lancaster area were not designated in the West Mojave Plan, consistent with the CDCA Plan, but existing routes are available for public use. Consequently, there are no miles of designated routes. These subregions are not shown on this table.

Attachment 2

PILOT TEST SUMMARY

Bureau of Land Management West Mojave Plan Area Off-Highway Vehicle Monitoring Protocol April 29, 2013

Task 4 – Pilot Test Results and Recommendations

Pilot Test Field Implementation

The WEMO OHV Monitoring Protocol pilot test was conducted by BLM between April 8, 2013 and April 16, 2013. BLM tested the monitoring protocol variables over a total of 60 miles within the Black Mountain subregion. The 60 miles represent a statistical sample of the 202.55 total miles of designated routes in the Black Mountain subregion (the total sample size was adjusted to account for a finite population). The size of the sample is intended to provide results with an 80 percent confidence level and a 10 percent sampling error (i.e., if a sample of Black Mountain designated routes was selected 100 times, 80 of the samples would provide results that are within +/- 10 percent of the true population value). Table 1 provides a summary of the key statistical parameters from the 2012 baseline data that were used to calculate the sample size. The randomly selected routes that were part of the pilot test within the Black Mountain subregion are listed in Appendix 1¹.

Total # of Routes	155
Total Miles	202.55
Confidence Level	80%
Sampling Error	10%
Mean (incursions/mile)	0.21
Pop Standard Deviation	0.358
Total Incursions	42
Percent of Routes with Incursions	20%

Table 1. Black Mountain Statistical Parameters

BLM staff conducted field testing of monitoring protocol variables by driving the routes listed in Appendix 1 and stopping at every incursion to record data related to the monitoring variables using a Trimble Global Positioning System (GPS) unit. Appendix 2 includes the Trimble GPS unit's data dictionary, which displays the monitoring variables for which field staff recorded data at each incursion. The Trimble GPS unit used by staff in the field was loaded with and showed previous monitoring data so that staff could

¹ Routes to be monitored were re-randomized after the 2/28/13 list of routes to be monitored was developed due to refinement of GIS data and selection of confidence level and sampling error. In addition, monitoring identified route numbering errors that were corrected. Thus, routes listed in Appendix 1 are different than those in the 2/28/13 list of routes.

stop at previously recorded incursions and record information and also allowed staff to record information for new incursions. No information was recorded for previous incursions that were no longer considered incursions. Monitoring efforts were conducted by BLM staff members over 7 days. Data was downloaded from the GPS unit on a daily basis. After data was downloaded, it was post-processed by BLM (for additional corrections to positional accuracy), converted to GIS data, and assembled in a geodatabase.

The data dictionary focused on variables needed to address: (1) public compliance with route closures, and (2) the creation of new illegal routes. These variables are listed in Table 2. Field staff also collected information on several other variables (e.g., GPS locations of incursions, type of use, route mileage, etc.) that help contextualize the field data and increase its usefulness for decision-making purposes. Appendix 2 includes the full list of variables included in the pilot test data dictionary.

Monitoring Parameter	Variables				
Public Compliance with Route Closures	Incursion Usage				
	Incursion Width				
	Closure Type				
Creation of New Illegal Routes	Incursions				

Table 2. Monitoring Parameters and Variables

The variables were similar (and in many cases identical) to many of the 2012 baseline variables, were not cumbersome to collect in the field, and resulted in data that could be used for analysis purposes. Overall, BLM staff felt that the variables included in the data dictionary worked well in the field and captured the information that was needed to determine use of closed routes and creation of illegal routes.

Issues identified by BLM field staff during the pilot test included:

- 1. Two errors in route numbering where different routes had the same route number.
- 2. A few routes (BM7469 and BM7410) were duplicated in the baseline GIS data and thus mileages for these routes were doubled in the original list of routes to monitor. When corrected, removing the duplicate routes reduced the mileage to be monitored and required addition of route mileage to total 60 miles for the pilot test.
- 3. Typos in route numbers in GIS: BM7498 should be BM7490, BM6344 should be BM6364, and BM6355 was designated on two different routes. The shorter route was assigned route number BM6335.

- 4. On the ground, routes were not the same length as they were shown to be in GIS. In the field, the difference in route mileage between GIS and what was recorded by the Trimble GPS unit sometimes varied by 0.03 or 0.04 miles.
- 5. Some routes that were designated as open in GIS were not locatable on the ground or had been naturalized and were not visible on the ground anymore.
- 6. Routes that were less than 0.01 miles were hard to find in the field.
- 7. The ends (generally) of some routes were not passable by vehicle (Jeep or ATV) due to terrain. The route was monitored as far as staff felt was safe to drive. This generally meant that the end of the route as shown in GIS was within visual line of sight by direct ocular or binocular means (less than 0.03 miles).

The first three issues identified are related to errors within the baseline data in GIS. It is likely that similar minor GIS errors will continue to be identified during future monitoring efforts. Protocol changes to resolve these issues include:

- Selecting a slightly larger sample of routes than is required to provide some additional routes that would be used every year to address any route mileage issues that are identified;
- Converting GPS data to GIS data yearly and making corrections to baseline data (and GTLF) as needed;
- Identifying GIS data issues in the Year 1 and 2 memos and Year 3 monitoring report;
- Updating the list of routes to be monitored in the current year as issues arise and corrections are needed; and
- Reviewing the list of routes to be monitored in GIS in advance of monitoring activities to identify possible duplicate routes.

The issue regarding route length was resolved in the pilot test by adding a variable to the data dictionary that tracked the length of the route being monitored and also provided documentation of the routes that had been monitored. Because the statistical validity of the monitoring program is based on route mileage, it is important to have an accurate as possible mileage of each route. Though the route length differences between GIS and field measurements was not significant, the route length variable would establish correct mileages for each route over time and would therefore provide additional long-term value and is recommended for retention in the protocol. It should be noted that recording the route length on the Trimble GPS unit is more complicated than recording information for the other variables because the variable has to be started and

stopped after recording data for each incursion. Thus, using this variable will require some additional staff training prior to field work.

The issue regarding designated open routes that were not locatable on the ground or had been naturalized was resolved in the pilot test by adding a variable to the data dictionary that recorded a point where the route should have been and allowed staff to record the on-site conditions and the designated route number of the route that was not locatable on the ground. A designated open route that was not locatable or had been naturalized was reviewed at the expected beginning of the route, at the end of the route, and where it would be expected to cross another route. If, at all of these locations, there was no evidence of the route, it was determined that the route was no longer in use or had been naturalized. Due to the history of how routes have been converted into GIS over time, this error could arise in the future in other areas. Therefore, it is recommended that the variable for routes not present be retained in the protocol. In addition, the information regarding routes that were not locatable in the field, but were designated as open, could then be relayed to the BLM manager for evaluation and potential redesignation of the route as closed.

BLM staff had difficulty in the field with identifying routes that were less than 0.01 miles in length as often these were very short connector routes or pullouts. Typically these short connector routes are not signed or are developed as maintenance components of rights-of-way facilities and it can be difficult to pinpoint their beginning and end from the main route. Pullouts on the other hand, terminate a short distance (under 0.1 mile) and are not true routes in the sense of providing access and/or travel opportunities. Therefore, it is recommended that routes less than 0.01 miles in length be removed from the population of routes to be monitored in the protocol.

The last issue deals with drivability of routes. Text should be added to the protocol requiring staff to stop monitoring if the route is not passable. At the point that the route becomes impassable, staff should record a point as part of the route not present variable and a description of the on-site conditions.

In addition to adding variables for routes not present and route length, modifications to two variables were also made when the final data dictionary was developed for the pilot test. These modifications included additional types of incursion use and using a list of specific types of closure actions rather than requiring staff to write a description of closure actions.

The additional types of incursion use were added because, in the future, routes may be limited to certain types of uses, such as motorized and biking use, and monitoring could identify if non-allowable uses are occurring on incursions off of the route. Therefore, it is recommended that the types of incursion use listed in the data dictionary be retained in the protocol.

The variable for describing the closure action in place on an incursion was changed from a text variable where staff would write-in a description, to a list variable where staff would choose a closure action from a drop-down list, providing more consistency over time and facilitating analysis. BLM staff felt the drop-down list used was an appropriate list of potential closure actions and was used successfully during field testing. Therefore, it is recommended that the drop-down list of closure actions be retained in the protocol rather than an open-ended text field where staff describe the closure action in writing.

In addition to the variables discussed above, two other variables were added to the pilot test: incursion use comment and photos. The incursion use comment variable allowed BLM staff to note anything regarding the incursion that may require further action or specific comment, such as vandalism or dumping. Therefore, it is recommended that this variable be retained in the protocol and information from this variable be relayed to management for further action.

Regarding photos, the ease of recording photos depends on the type of GPS unit used in the field. Juno GPS units have a built-in camera that can associate the photo with the incursion and will upload the photo as part of the GPS data recorded. GeoXM GPS units do not have built-in cameras and thus BLM staff using these units had to take photos with a separate camera. The variable for photos on the GPS unit allowed staff to record the photo number from the camera (subvariable Comment) as well as an autogenerated date, time, and location, in case there was a discrepancy later on and the date and time were needed to identify the correct photo for the incursion. BLM staff felt that photo documentation was helpful in recording how conditions have changed over time and felt that, despite the added burden of recording photos when a GeoXM unit was used, photos should be taken where conditions have changed from previous monitoring efforts. Therefore, it is recommended that the protocol stipulate that photos should be taken at new incursions and at existing incursions where conditions have changed from previous monitoring efforts. Staff that conducted monitoring activities recommended using Juno GPS units in the future due to ease of use and reduced chance for error with photo numbering. It should be noted that using Juno GPS units would require some additional staff training.

BLM staff also recommended that certain routes may necessitate the use of vehicles other than four-wheel-drive vehicles for monitoring. In the future, routes may be designated as limited to certain vehicle types (e.g., motorcycles, ATVs) and thus the appropriate vehicle will need to be used for monitoring. It is recommended that the protocol state that the appropriate vehicle should be used for monitoring each route.

BLM staff conducting monitoring activities also recommended using teams of two people when minor route maintenance, authorized implementation activities, and incursion response activities were going to be conducted in the field in conjunction with OHV monitoring activities.

Although, during the pilot test, BLM staff did not record any data at incursions identified in the baseline data that did not appear to be incursions now, future monitoring efforts should record data at previously identified incursions even if no use is currently occurring at that incursion. If this was the case, "none" should be selected under the incursion usage variable and "no" or "none" selected for subsequent required variables in the data dictionary. This will require adding "none" to the incursion width and type of incursion use variables, which are currently not options under these two variables in the data dictionary. It is important to track the lack of use on existing incursions over time to help gauge the success of the BLM's efforts to encourage responsible route usage (e.g., through route closures, education and information efforts, etc.).

Analysis of Pilot Test Data

The BLM post-processed all of the data from the Trimble GPS units, converted the data to GIS data, and combined the monitoring GIS data with baseline data in one geodatabase. AECOM then took this geodatabase and converted the GIS data into a Microsoft Excel spreadsheet for analysis. Data analysis consisted of reviewing monitoring data for any inconsistencies or missing data, as well as comparing monitoring data to baseline data.

The monitoring data contained expected information regarding the monitoring variables and only contained a few inconsistencies in the subregion name field (Red Mountain was selected instead of Black Mountain). In addition, a few incursions with no closure actions did not have a response for closure action description (should be "none"). Therefore, it is recommended that text be added to the protocol describing data checks that should be performed once the GPS data has been converted to GIS data, including checking for the correct subregion (compared to the route subregion code) and checking to make sure "no" for closure action is accompanied by "none" for description of closure action. Also, the "route not present" variable is used for both routes that are not locatable on the ground and portions of routes not passable by vehicle. Therefore, it is recommended that once GPS data is converted to GIS data, the GIS specialist review any "route not present" points to determine which points are for routes not locatable versus which points are for where routes become impassable, and adjust baseline data as necessary.

In order to compare monitoring data to baseline data, re-attributing of some baseline data was necessary, which was expected due to changes in the monitoring variables between baseline data collection and monitoring. Baseline data for width, frequency (now usage), and past management (now closure action and description of closure action), need to be reattributed. For consistent reattribution of data, it is recommended that the protocol provide specifics on how to reattribute these fields.

When analyzing the monitoring data in Excel, it was difficult to correlate incursions within the monitoring data to incursions in the original baseline data. Based on their location, most of the incursions were easily identified as new; however, those in close proximity to baseline incursions were reviewed against aerial imagery to see if they were baseline or new incursions. To avoid this issue in the future, it is recommended that baseline incursions be given Incursion ID numbers that begin with the same 2 letter subregion code as the route they are on, followed by 4 numbers. After monitoring data is converted to GIS data, new incursions can be given Incursion ID numbers. In addition, it is recommended that a required variable be added to the data dictionary

(Incursion ID) to allow staff to enter the ID number for existing incursions that are revisited as part of monitoring activities.

As much of the analysis is based on comparing baseline incursion information and monitoring information for the 5 variables (see Section 5, Year 3 Monitoring Results Report outline in the protocol), there needs to be a way to identify results for baseline incursions that were re-visited and results for new incursions. It is recommended that after GPS data is converted to GIS data, a field be added in GIS titled "Origin" and attributed as "Baseline" for incursions that are in the baseline data that were not part of monitoring, "Baseline/New" for incursions that are in the baseline data that were revisited and "New" for incursions that are new and were not part of the baseline data. The analysis can then exclude "Baseline" incursions and review results for "Baseline/New" and "New" incursions.

After some modifications to the data were made, including reattributing baseline data and adding fields for Incursion ID and Incursion Origin, pivot tables of the data were created in an Excel spreadsheet to determine if this would be an acceptable way to analyze the data for reporting or if a different program or medium was necessary. The pivot tables were determined to provide the data in a format conducive to conducting the analysis necessary to complete the tables located within the outline for the Year 3 Monitoring Results Report (in the protocol document), particularly after adding another four fields to the data to show level changes in width and usage of baseline data compared to monitoring data. This was done by converting the usage and width categories to numbers and calculating the difference between monitoring and baseline values. The pivot tables were easy to both create and manipulate to show the data needed to fill in each table and should facilitate analysis and report preparation.

The data collected from the pilot test provided anticipated information on incursion width, usage, type of use, and closure actions. For instance, after a brief review of the data for new incursions, it was easily identified that 1) Over 50% of identified incursions were new, 2) The majority of the new incursions were likely from motorcycles as they were single track routes of motorcycle width, and 3) Closed routes with closure actions in place were still being used and increasing in width. Therefore, the pilot test demonstrated that, regardless of the level of statistical validity, the monitoring variables will provide the information needed to evaluate the monitoring objectives of public compliance with route closures and the creation of new illegal routes, as well as provide site specific information for management decision-making related to enforcement, education, and closure action implementation.

Summary of Pilot Test Data

As noted previously, about 60 miles of designated routes were randomly selected in the Black Mountain subregion. The primary purpose of the pilot monitoring was to test the efficacy of the field variables from a field collection perspective. That said, the pilot monitoring effort yielded data that are summarized below for the primary variables of interest of the monitoring protocol.

Creation of New Illegal Routes

The creation of new illegal routes is measured through monitoring incursions on each sample route. The Black Mountain sample included 53 designated routes that were monitored both during the 2012 baseline and 2013 pilot study. Table 3 summarizes incursion data (both 2012 baseline and 2013 pilot study) from the sample of Black Mountain designated routes. In general, the number of incursions, percent of sample routes with incursions, and incursions per mile of route all were higher during the 2013 pilot study compared to the 2012 baseline data.

	2012 Baseline	2013 Pilot
Number of Incursions	16	40
Percent of Sample Routes with Incursions	18.9%	24.5%
Incursions per Mile of Route	0.26	0.66

Table 3. Black Mountain Sample Incursion Summary

In total, field staff identified and recorded 24 new incursions on the sampled routes in the Black Mountain subregion. Of the sampled routes, two that previously had incursions (identified during the 2012 baseline) no longer had incursions, while five (which previously had no incursions) had new incursions. The number of incursions also went up on six sampled routes and stayed the same on two sampled routes.

Public Compliance with Route Closures

Public compliance with route closures is measured primarily through three variables: 1) closure action, route width, and route usage. In general, increasing width and/or usage is indicative of continued non-compliance, which is readily apparent as soon as it occurs. Decreasing width and/or usage is indicative of increased compliance that has been sustained over a substantial period of time, so that it shows evidence of repair. As the monitoring protocol is implemented over time, these two variables (width and usage) may be aggregated by closure action to determine the efficacy of specific closure actions on public compliance. Only two of the existing incursions had previous closure actions so an assessment of the efficacy of these closures is generally not feasible at this time.

Figure 1 displays route width (estimated based on the type of vehicle that could access the incursion) and Figure 2 displays estimated usage levels (light, moderate, high) for the incursions present on sampled routes in the Black Mountain subregion during the 2012 baseline and 2013 pilot study. Most of the new incursions (from the 2013 pilot study) had narrower widths (i.e., more incursions with estimated motorcycle widths than truck widths) compared to the 2012 baseline data (more incursions with estimated truck widths than motorcycle widths). Both the baseline and pilot study monitoring pointed to more incursions with light use compared to heavy use.



Figure 1. Estimated Incursion Width



Figure 2. Estimated Incursion Use Level

Summary of Recommended Changes to the Monitoring Protocol

Based on issues identified during the pilot test, recommended changes to the monitoring protocol are:

- Select a slightly larger sample of routes at the beginning of the monitoring cycle than is required to provide some additional routes that could be used every year to compensate for any route mileage issues encountered in the field.
- Convert GPS data to GIS data yearly and making corrections to baseline data (and GTLF) as needed (route numbering, route line features, route length, etc.).
- Identify GIS data issues in the Year 1 and 2 memos and Year 3 Monitoring Results Report;
- Update the list of routes to be monitored in the current year as issues arise and corrections are needed.
- Review the list of routes to be monitored in GIS in advance of monitoring activities to identify possible duplicate routes.
- Add the route length variable as shown in the revised data dictionary and ensure BLM staff are trained on how to record this variable on the GPS unit prior to field work.
- Add the route not present variable as shown in the revised data dictionary.
- Exclude routes 0.01 miles or less in length from the population of routes to be monitored.
- Include text in the protocol document requiring staff to stop monitoring if the route is not passable and record a point for the route not present variable at the location where the route becomes impassable and provide a description of the on-site conditions.
- Use the list of types of incursion use as shown in the revised data dictionary.
- Replace the open-ended description of closure action text variable with the list of closure actions as shown in the revised data dictionary.
- Add the incursion use comment variable as shown in the revised data dictionary.
- Add the photos variable as shown in the revised data dictionary.

- Encourage use of the Juno (or other location-linked photo) GPS units if available and require photos of new incursions and existing (i.e. previously identified) incursions where conditions have changed from previous monitoring efforts.
- Use appropriate vehicles for monitoring of each route (four-wheel-drive, ATV, or motorcycle).
- Use teams of two for monitoring activities when other minor route maintenance, authorized implementation activities, and incursion response activities will also be conducted.
- Consistently record information for all new incursions AND all previously identified incursions. If there is no use of a previously identified incursion, "none" should be selected for the incursion usage variable and "no" or "none" selected for remaining required variables in the data dictionary.
- Add text to the protocol describing data checks that should be performed once the GPS data has been converted to GIS data, including checking for the correct subregion (compared to the route subregion code), checking "no" for closure action is accompanied by "none" for description of closure action. Also, review any "route not present" points to determine which points are for routes not locatable versus which points are for where routes become impassable, and adjust baseline data as necessary.
- Add text to the protocol describing how to reattribute the width, frequency and past management variables from baseline data for the Barstow Field Office.
- Give Incursion ID numbers to incursions within the baseline data that begin with the same 2 letter subregion code as the route they are on, followed by 4 numbers. After monitoring GPS data is converted to GIS data, new incursions can be given Incursion ID numbers.
- Add a required variable to the data dictionary (Incursion ID) to allow staff to enter the ID number for existing incursions that are re-visited as part of monitoring activities.
- After GPS data is converted to GIS, add a field titled "Origin" and attribute as "Baseline" for incursions that are in the baseline data that were not part of monitoring, "Baseline/New" for incursions that are in the baseline data that were revisited and "New" for incursions that are new and were not part of the baseline data
- Add text to the protocol describing how to convert width and usage categories to numbers and calculate level changes between baseline and monitoring data.

Appendix 1 – Routes Monitored in Pilot Test

Designated Route ID	Route Mileage
BM5395	1.16
BM6237	1.78
BM6241	1.66
BM6241C	2.93
BM6251	3.74
BM6265c	0.41
BM6321	0.48
BM6327	0.77
BM6330	1.10
BM6335	0.67
BM6337	0.72
BM6343A	0.10
BM6344	1.73
BM6355	3.81
BM6357	0.11
BM6362	1.25
BM6366	3.83
BM6367	0.19
BM6368	2.33
BM6375	0.85
BM6384	0.86
BM6443C	0.04
BM7153	11.29
BM7153B	0.06
BM7227	0.68
BM7401A	0.27
BM7410	0.98
BM7410A	0.06
BM7414	1.35
BM7417A	0.24
BM7468	1.08
BM7469	0.65
BM7474	1.21
BM7477	4.80
BM7483	0.66
BM7490	4.66
BM7495	0.86
BM7497	0.51
CG7223	0.14
CG7225	0.15
FP6237	0.26
TOTAL	60.43

Appendix 2 – Pilot Test Trimble GPS Unit Data Dictionary Used

C:\Documents and Settings\readbl\Local Settings\Temporary Internet Files\Content.Outlook\H1V3XW1T\MonitorinkySamp201kg Monitoring Sampling Pilot Test 4 5 2013 Point Feature, Label 1 = DesignatedNumber, Label 2 = StaffNames Start Incursion Incursion Info DesignatedNumber Text, Maximum Length = 8, DesignatedNumber Required, Normal StaffNames Text, Maximum Length = 50, StaffNames Required, Normal Date Date, Auto generate Create, Month-Day-Year Format, Date Required, Normal Subregion Menu, Required, Normal, Subregion Darwin Sierra North Searles South Searles Ridgecrest El Paso Jawbone Rands Red Mountain Middle Knob Fremont Peak Black Mountain Coolgardie Harper Lake El Mirage Kramer Hills Iron Mountain Mitchel Mountains Calico Mountains Cronese Lake Afton Canyon Broadwell Lake Barstow Stoddard Valley Ord Mountains Newberry/Rodman Johnson Valley Pisgah Crater Juniper Flats Rattlesnake Canyon Morongo Valley Wonder Valley Joshua Tree Usage Menu, Required, Normal, Incursion Usage None Light Medium Heavy Width Menu, Required, Normal, Incursion Width Truck Quad Motorcycle Menu, Required, Normal, Type of Incursion Use Type Single Track Two Track Multi-Track Hiking MtnBiking Equestrain Animal CampingStaging Other ClosureAction Menu, Required, Normal, BLM Closure Action in Place? Yes No DescribeClosure Menu, Normal, Normal, Describe Closure Action Fencing Boulders Vegetation Closed Sign Natural None TypeUseComment Text, Maximum Length = 25, IncursionUseComment Normal, Normal

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Photo	Point Feature, Label 1 = Comment, Label 2 = Date Photo
Comment	Text, Maximum Length = 50, Comment Normal, Normal
Date	Date, Auto generate Create, Month-Day-Year Format, Date Normal, Normal
Time	Time, Auto generate Create, 24 Hour Format, Time Normal, Normal
LinearSample	Line Feature, Label 1 = RouteID Lenght of Open route driven
RouteID	Text, Maximum Length = 10, Designated Open Route ID Required, Normal
RouteNotPresent	Point Feature, Label 1 = Describe Conditions, Label 2 = Designated RouteID RouteNotPresent
Describe Condition	s Text, Maximum Length = 40, Describe Conditions Normal, Normal
Designated RouteID	Text, Maximum Length = 8, Open Route Number Normal, Normal

FIELD REPORT from Chief BLM Ranger Patrick Chassie , Barstow Field Office, Dec. 1, 2014 via email – 760.252-6070

All

During this holiday weekend, BLM experienced high OHV use within the Barstow Field Office. Law Enforcement Rangers conducted over 1000 contacts and reported above average holiday use in Johnson Valley, Stoddard Valley, El Mirage, Dumont Dunes, and Razor OHV areas. The Barstow Field office estimates OHV visitor use at 33,300 this holiday weekend based on vehicle count.

Law Enforcement also experienced incursions into several wilderness areas and DWMA's that contain sensitive sites and cultural resources. Law Enforcement Rangers cited OHV users in the Cleghorn Wilderness and discovered off route incursions into limited use areas. Sunfair dry lake was estimated at 300 people on private and public lands riding OHV's and or conducting other recreational activities. Wonder Valley was estimated at 150 OHV users. Post Homestead saw off route travel. Giant Rock and the Marine Corp expansion area also saw heavy illegal OHV use.

Evidence suggest the 29 Palms MCLB expansion with associated reduction of Johnson Valley OHV area, has lead to an increase of OHV use into other non-traditional riding areas to include sensitive biological and cultural sites. Based on the increased OHV use within the areas mentioned above and the limitied law enforcement resources available, Barstow BLM Law Enforcement needs to adjust the placement of law enforcement Rangers to balance the protection of natural resources and public safety. Barstow BLM has WEMO enforcement strategies that place biological and cultural resources as a high priority. As BLM Law Enforcement Rangers are available, BLM Barstow will focus our enforcement to address biological and culturally sensitive areas.

BLM's primary mission is resource protection. BLM law enforcement can enforce Federal rules and regulations. We do not currently have peace officer authority to enforce county laws, rules or regulations. This poses some difficulties when attempting to enforce OHV use in urban interface environments like Wonder Valley or Sunfair Dry Lake. The BLM, CHP and San Bernardino County continue to coordinate and develop law enforcement strategies to address OHV use. This coordination is critical in addressing the OHV use with in the urban interface environment. Continued cooperation is expected and necessary to balance enforcement within the areas mentioned above. Respectfully, Patrick

Attachment 4









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Secretary of the Interior Department of the Interior 1849 C Street, N.W. Washington, D.C. 20240 Feedback@ios.doi.gov

Open Letter to Secretary of the Interior Sally Jewell

Dear Secretary Jewell,

Congratulations on your new position. We are writing regarding the Bureau of Land Management's anticipated decision on management of the Imperial Sand Dunes Recreation Area in the California Desert Conservation Area which includes the Algodones dunes which covers over 160,000 acres and is the largest dunes ecosystem in the United States. Over 23,000 acres of this area was designated as the Imperial Sand Hills National Natural Landmark in 1966.

On behalf of our hundreds of thousands of members we ask that you do not simply adopt the Bureau's recommendation, but turn your attention to careful consideration of the impacts and affects of adopting the proposed decision. *The Bureau's preferred alternative would open an additional 40,000 acres of the dunes complex, including over 6,000 acres of rare microphyll woodlands, to uncontrolled destruction by off road vehicles.*

Our groups have engaged in the administrative process and protested the proposed decision and fully recognize the need to balance some recreational use with conservation. We oppose the proposed Bureau decision because it would cause unnecessary and undue destruction of the resources of our public lands including listed and rare plants and wildlife, lands with wilderness characteristics, and increase particulate emissions further impairing air quality in the Imperial air basin which is already one of the most impaired air basins in the country.

Of great concern is that the proposal completely fails to acknowledge the increasing need to conserve rare sand dunes, desert washes, and microphyll woodland habitats in the California desert to off-set and mitigate for impacts from renewable energy development on public lands which are a high priority for this administration as a key part of the clean energy initiatives in the

face of climate change. As a result, adopting the Bureau's preferred alternative in a final decision would significantly undermine ongoing planning for renewable energy development in the Desert Renewable Energy Conservation Plan process which the Fish and Wildlife Service



and the Bureau have both committed countless hours and significant resources to support.

We urge you to please take the time to consider how the proposed Imperial Sand Dunes Recreation Management Plan would undermine other Department of Interior priority projects including the development of renewable energy in the California deserts *before* a decision is issued.

We would welcome the

opportunity to discuss this timely and important issue further with you at your convenience.

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Powers Engineering

February 23, 2015

California Energy Commission Dockets Office, MS-4 Docket No. 09-RENEW EO-01 1516 Ninth Street Sacramento, CA 95814-5512 e-mail: <u>docket@energy.ca.gov</u>

Subject: Powers Engineering Comment Letter on Draft DRECP NEPA/CEQA

A major flaw in the draft DRECP and DEIR/EIS ("DRECP") is the failure to include a behindthe-meter local solar alternative as the "no action" alternative to the targeted renewable energy generation levels in the DRECP study area for utility-scale solar, utility DG solar, and wind power. The local solar "no action" alternative is the most likely scenario given: current behindthe-meter solar installation rates of more than 1,000 MW per year, the cost-competitiveness of behind-the-meter solar compared to utility power with or without net-metering, state law mandating that the CPUC support sustained growth of behind-the-meter solar installations through appropriate rate design after net-metering expires, and the state's ongoing commitment to smart grid modernization of the existing distribution grid to allow it to fully accept two-way power flows and eliminate distribution grid reliability issues as a brake on customer-provided local solar development. In addition, the local solar "no action" alternative would eliminate the \$140 billion life-of-project cost and environmental impact of 13 to 14 new 500 kV transmission lines assumed in all DRECP scenarios.

I. Proposed 500 kV transmission build-out will add \$90 per megawatthour to DRECP solar and wind cost of generation

The DRECP assumes a need for new transmission lines to deliver about 14,000 MW for all alternatives. This 14,000 MW would be delivered over 13 to 14 500 kV transmission lines, depending on the alternative, as shown in Table 1.

Table 1. Number of new 500 KV miles projected for each DKLET scenario									
Alternate 1	Alternate 2	Alternate 3	Alternate 4	Alternate 5	No Action				
14	14	14	14	13	14				

Fable 1. Number	[,] of new 500 kV	lines proie	cted for each	DRECP scenario ¹
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The DRECP also identified a representative 500 kV line, SDG&E's 500 kV Sunrise Powerlink completed in 2012, as having a capacity of 1,200 MW.² The 2006 application for the Sunrise Powerlink estimated an initial capital cost of \$1.265 billion and a 40-year life of project cost of

¹ Draft DRECP and EIR/EIS, *Appendix K – DRECP Transmission Technical Group Report Conceptual Transmission Plan for DRECP Alternatives*, October 2013, pp. 29-33.

² Ibid, p. 1.

\$6.96 billion in 2010 dollars.³ The Sunrise Powerlink capital cost approved by the California Public Utilities Commission in 2008 was \$1.883 billion in 2012 dollars.⁴ Extrapolating from the ratio of capital cost to the 40-year life-of-project cost Sunrise Powerlink application, the approximate life-of-project cost of the Sunrise Powerlink will be \$10 billion in 2012 dollars.⁵

Assuming fourteen 500 kV lines equivalent in cost to the Sunrise Powerlink are built to deliver renewable energy generated in the DRECP study area, the total 40-year life-of-project cost will be approximately: 14×10 billion = 140 billion in 2012 dollars. This is equivalent to \$3.5 billion per year in new transmission-related expenses.⁶

The total nameplate capacity of utility-scale solar thermal and solar PV, utility DG solar, and wind power in the DRECP preferred alternative is 14,453 MW. Assuming all of this utility-scale solar thermal and solar PV, utility DG solar, and wind power flow over the new 500 kV lines, the annual generation will be 40 million megawatt-hours (MWh) per year.⁷ The unit cost of this new 500 kV transmission would be approximately \$90 per MWh of DRECP renewable energy delivered, or \$0.09 per kilowatt-hour (kWh) for every kWh delivered.⁸

II. Low cost of rooftop solar/parking lot solar will drive continued growth after net metering ends in 2016 or 2017

The California Energy Commission (CEC) assumes that the state will see a dramatic reduction in rooftop solar installations with the end of the California Solar Initiative and net metering.⁹ The CEC projects behind-the-meter solar capacity additions dropping from a peak of about 700 MW in 2013 to 440 MW in 2014, 189 MW in 2015, 234 MW in 2016, and 99 MW in 2017.¹⁰ The CEC forecasts a 10-year customer solar average capacity addition, from 2015 through 2024, of 222 MW per year.¹¹ The CEC projection, finalized in January 2014, does not take into account the much higher AB 327 net-metering solar targets signed into law in October 2013.¹²

⁹ CEC, *California Energy Demand 2014-2024 Final Forecast Mid-Case Final Baseline Demand Forecast Forms*, November 19, 2013, STATEWIDE Mid.xls, STATEWIDE Form 1.2-Mid, "PV" column:

 $\frac{http://www.energy.ca.gov/2013\ energypolicy/documents/demand-forecast/mid\ case/^{10}$ Ibid.

 ³ SDG&E, Sunrise Powerlink Transmission Project Purpose and Need - Volume 2, Application No. 05-12-014, p. V-11. "Based on these estimates, SDG&E believes the cost of constructing the Sunrise Powerlink will be \$1.265 billion. . . Assuming a 40-year project life and Operating & Maintenance ("O&M") costs of \$10 million per year (in 2010 dollars), the levelized annual costs of the project are estimated at \$174 million." 40 years × \$174 million per year = \$6.96 billion.
 ⁴ CPUC Decision 08-12-058, Decision Granting a Certificate of Public Convenience and Necessity for the Sunrise

⁴ CPUC Decision 08-12-058, *Decision Granting a Certificate of Public Convenience and Necessity for the Sunrise Powerlink Transmission Project*, December 18, 2008, p. 293. "Order No. 6: A cost cap of \$1.883 billion (\$2012) is adopted for the Final Environmentally Superior Southern Route."

 $^{5 $1.883 \}text{ billion} \times (6.96 \text{ billion} \div 1.265 \text{ billion}) = 10.36 \text{ billion}.$

⁶ \$140 billion \div 40 years = \$3.5 billion per year.

⁷ Draft DRECP and EIR/EIS, *Appendix F2 - Megawatt Hours and Solar Technology Distribution*, August 2014, p. F2-5. Utility-scale solar generation = 25,877,613 MWh per year, utility DG solar generation = 5,195,561 MWh per year wind generation = 8,983,772 MWh per year. Total annual production = 40,056,946 MWh per year. ⁸ \$3.5 billion per year \div \$40 million MWh per year = \$88/MWh.

¹¹ Ibid.

¹² Assembly Bill No. 327 (Cal. 2013).

This very pessimistic DRECP customer self-generation solar projection appears to be the primary basis for the DRECP base case customer solar assumption of 10,000 MW in 2040. The CEC presumes that net metering is critical to the financial viability of customer-owned solar, and that the imminent phase-out of net metering will result in a dramatic retrenchment of rooftop and parking lot solar installations. This presumption is mistaken.

California's investor-owned utilities (IOUs) are in the process of meeting the California Solar Initiative (CSI) solar PV targets.¹³ The IOUs were to have 1,940 MW online by December 2016, and appear to have met the CSI targets in late 2014.¹⁴ This solar capacity is installed on the customer side of the electric meter, on rooftops and parking lots primarily, and is known as "net-metered" solar.

The IOUs' net-metered solar targets increased substantially with the passage of AB 327 in October 2013,¹⁵ which enacted Public Utilities Code Section 2827(c)(4)(B) and established minimum statutory net-metering rooftop solar targets to be met by the IOUs no later than mid-2017. AB 327 increased the minimum net-metering cap of the IOUs to 5,256 MW.¹⁶

This is a 3,316 MW increase over the 1,940 MW CSI target established for the IOUs by the Commission. The IOUs are required by Section 2827(c)(4)(C) to report on a monthly basis their progress in meeting the new minimum solar PV targets by mid-2017.

1,000 MW of rooftop and parking lot solar capacity was added in California in 2013.¹⁷ Approximately 1,300 MW was added in 2014.¹⁸ At current installation rates, with about 2,000 MW of new capacity need to reach the AB 327 net-metering target of 5,256 MW, the goal will be reached by the end of 2016.

Maintaining the actual 1,300 MW self-generation solar installation rate from 2015 through 2040 would add about 34,000 MW of new solar capacity in the state.¹⁹ This is in addition to the 3,000 MW of rooftop and parking lot solar in operation in the state at the end of 2014. This total of 37,000 MW of self-generated solar power in 2040 is far beyond the 10,000 MW of non-utility solar power assumed in the DRECP base case.

¹³ Decision 06-12-033, Opinion Modifying Decision 06-01-024 and Decision 06-08-028 In Response to Senate Bill 1, December 14, 2006, p. 36. Finding of Fact 15: The Commission's ("The Commission" is equivalent to "the

IOUs" in this context) 65% share of the 3,000 MW statewide goal is 1,940 MW, and 1,750 MW for the mainstream solar incentive program.

¹⁴ B. Del Chiaro, CALSEIA e-mail to B. Powers, February 17, 2015, regarding capacity of rooftop solar installed in 2014. "At least a 25 – 30 percent increase over 2013 (when ~1,000 MW_{ac} of net-metered solar installed), final numbers still pending."

¹⁵ Assembly Bill No. 327 (Cal. 2013).

¹⁶ Public Utilities Code Section 2827(c)(4)(B): <u>http://www.leginfo.ca.gov/cgi-</u>

bin/displaycode?section=puc&group=02001-03000&file=2821-2829. SDG&E net-metering target = 607 MW. SCE net-metering target = 2,240 MW. PG&E net-metering target = 2,409 MW. Total of the three IOUs = 5,256 MW. ¹⁷ Renewable Energy World, *California Blows the Lid off Solar Records Installing 1GW of Rooftop Solar in 2013*,

January 23, 2014.

¹⁸ B. Del Chiaro, CALSEIA e-mail to B. Powers, February 17, 2015, regarding capacity of rooftop solar installed in 2014. "At least a 25 – 30 percent increase over 2013 (when ~1,000 MW_{ac} of net-metered solar installed), final numbers still pending." 1,000 MW + $(0.30 \times 1,000 \text{ MW}) = 1,300 \text{ MW}$.

¹⁹ 1,300 MW-year \times 26 years = 33,800 MW.

37,000 MW of self-generated solar power is 27,000 MW more customer self-generated solar power than assumed in the DRECP base case. This amount of customer solar would completely substitute for the utility-scale solar thermal, utility-scale solar PV, utility-scale DG solar, and wind power in the DRECP base case scenario, and provide over 4,000 MW of additional customer solar output.^{20,21}

This scenario is also highly likely to occur unless the CPUC authorizes self-generation solar contracts at rates that are well below what the CPUC has already determined the self-generation solar is worth. This will not happen if CPUC follows state law:²²

In developing the standard contract or tariff, the commission shall do all of the following:

(1) Ensure that the standard contract or tariff made available to eligible customer-generators ensures that customer-sited renewable distributed generation continues to grow sustainably and include specific alternatives designed for growth among residential customers in disadvantaged communities.

Customer-sited renewable distributed generation cannot continue to grow sustainably unless the contract rate makes it economic to do so, and state law requires the CPUC to establish contract terms that result in growth in the rate of customer-side solar installations.

III. CPUC estimates rooftop solar is worth about \$0.12/kwh now and \$0.15/kWh in 2017

The CPUC sets the rates charged by the state's IOUs. It has determined the "avoided cost" of self-generated rooftop and parking lot solar is approximately \$0.12/kWh in 2015.²³ This avoided

²⁰ Draft DRECP and EIR/EIS, *Appendix F2 - Megawatt Hours and Solar Technology Distribution*, August 2014, p. F2-5. Utility-scale solar generation = 25,877,613 MWh per year, utility DG solar generation = 5,195,561 MWh per year wind generation = 8,983,772 MWh per year. Total annual production = 40,056,946 MWh per year.

²¹ Customer solar production = 1,752 kWh per year per kW_{ac}, or 1,752 MWh per year per MW_{ac}. Total quantity of customer solar necessary to offset DRECP utility solar and wind power = (40,056,946 MWh per year \div 1,752 MWh per year per MW_{ac}) = 22,864 MW_{ac}. The DRECP base case scenario assumes 10,000 MW_{ac} of customer solar. Therefore, amount of additional customer solar production beyond that necessary to displace DRECP utility-scale solar and wind = 37,000 MW_{ac} - 22,864 MW_{ac} - 10,000 MW_{ac} = 4,136 MW_{ac}.

²² Public Utilities Code Section 2827.1(b): <u>http://www.leginfo.ca.gov/cgi-</u> bin/displaycode?section=puc&group=02001-03000&file=2821-2829. "Notwithstanding any other law, the

bin/displaycode?section=puc&group=02001-03000&file=2821-2829. "Notwithstanding any other law, the commission shall develop a standard contract or tariff, which may include net energy metering, for eligible customer-generators with a renewable electrical generation facility that is a customer of a large electrical corporation no later than December 31, 2015. The commission may develop the standard contract or tariff prior to December 31, 2015, and may require a large electrical corporation that has reached the net energy metering program limit of subparagraph (B) of paragraph (4) of subdivision (c) of Section 2827 to offer the standard contract or tariff to eligible customer-generators. A large electrical corporation shall offer the standard contract or tariff to an eligible customer-generator beginning July 1, 2017, or prior to that date if ordered to do so by the commission because it has reached the net energy metering program limit of subparagraph (B) of paragraph (4) of subdivision (c) of Section 2827. The commission may revise the standard contract or tariff as appropriate to achieve the objectives of this section. In developing the standard contract or tariff, the commission shall do all of the following:

⁽¹⁾ Ensure that the standard contract or tariff made available to eligible customer-generators ensures that customer-sited renewable distributed generation continues to grow sustainably and include specific alternatives designed for growth among residential customers in disadvantaged communities."

cost is projected to rise to \$0.15/kWh by 2017 and stay relatively constant at this value through 2020.²⁴ This is the cost that the IOUs would bear to replace the self-generated solar power if it were not being generated.

The CPUC must set rates for self-generated solar power to supersede the current net metering program when it expires.²⁵ It is reasonable to assume that the rate paid for self-generated solar power in a post net-metering regulatory environment will be in the range of the avoided cost that the CPUC has already calculated for self-generated solar power, or about \$0.15/kWh beginning in 2017.

Production cost of commercial and residential rooftop solar will be well IV. below \$0.15/kWh in 2017

The DOE-modeled capital cost estimate for a 10 MW solar PV project in 4th quarter 2013 was \$1,930/kW_{dc}.^{26, 27} This is comparable to the \$2,000/kW_{ac} capital cost for four 10 MW solar PV projects in New Mexico announced in June 2014.²⁸ Solar PV contracts are being signed in 2014 at power purchase agreement (PPA) prices less than \$50/MWh.²⁹

Table 2 summarizes DOE capital cost projections for rooftop and utility-scale solar PV. DOE forecasts that capital cost will decline to as low as $1,300/kW_{dc}$ for systems 5 MW and up by 2016, as low as 1,500/kW_{dc} for rooftop systems by 2016.³⁰ Reported system prices of residential and commercial PV systems declined 6 to7 percent per year, on average, from 1998–2013, and by 12 to 15 percent from 2012–2013, depending on system size.³¹ The 2016 forecast capital cost ranges shown in Table 2 are consistent with this historic solar PV price decline rate.³²

²³ California Public Utilities Commission, California Net Metering Ratepayer Impacts Evaluation, October 28, 2013, Figure 14, p. 57. ²⁴ Ibid, Figure 14, p. 57. ²⁵ Public Utilities Code Section 2827.1(b).

²⁶ U.S. DOE, Photovoltaic System Pricing Trends Historical, Recent, and Near-Term Projections 2014 Edition, September 22, 2014, p. 22.

²⁷ DNV KEMA Energy & Sustainability, Austin Energy Review of Strategic Plan for Local Solar in Austin, prepared for Austin Energy, November 22, 2013, p. 8, p. 10, and p. 16. Utility-scale solar > 5 MW has an assumed dc-to-ac conversion of 90 percent. Therefore a \$1,930/kW_{dc} utility-scale solar capital cost equals a kW_{ac} cost of: $1,930/kW_{dc} \div 0.9 = 2,144/kW_{ac}$.

²⁸ Energy Prospects West, *PNM to Build Four Solar Projects Next Year*, June 10, 2014. "PNM will build four 10-MW photovoltaic solar power projects in 2015 . . . The four projects, which will cost \$79 million to build."

²⁹ GreenTech Media, *Cheapest solar ever? Austin Energy buys at 5 cents per kWh*, March 10, 2014.

³⁰ U.S. DOE, Photovoltaic System Pricing Trends Historical, Recent, and Near-Term Projections 2014 Edition, September 22, 2014, pp. 27-28. ³¹ Ibid, p. 4.

³² Ibid, p. 24. Germany average residential PV installed price in 2013 was $2.05/W_{dc}$. Hardware costs are fairly similar between the U.S. and Germany. Therefore the gap in total installed prices must reflect differences in soft costs (including installer margins). The German residential PV system cost is reflective of a potential for near-term installed price reductions in the U.S.

Type of solar PV	2014 modeled	2016 forecast best-case	2016 forecast in \$/kWac
	capital cost	& mid-point capital	with DC-to-AC
	(kW_{dc})	cost (\$/kW _{dc})	conversion ³⁴
Residential rooftop	3,290	1,500 - 2,250	1,765 - 2,647
Commercial rooftop	2,540	1,500 - 2,250	1,765 - 2,647
_			
Utility-scale, 5 MW	2,030	1,300 - 1,625	1,444 - 1,806
•			

Table 2. DOE current and projected capital costs for rooftop and utility-scale (≥ 5 MW) solar PV projects³³

The U.S. Energy Information Administration identifies a fixed O&M cost for solar projects of \$27.75/kW-yr.³⁵

The current federal solar investment tax credit (ITC) for solar projects, through 2016, is 30 percent.³⁶ This means that 30 percent of the gross capital cost of the solar project can be deducted from taxes owed the federal government. The ITC will drop from 30 percent to 10 percent after 2016 for commercial and utility-scale projects.³⁷ The ITC will be eliminated for residential projects.³⁸ In addition to the ITC, commercial and utility solar projects are also eligible for accelerated depreciation of the net capital cost of the solar project after deducting the ITC. Accelerated depreciation has the effect of reducing the net capital cost by an additional 28 percent when the ITC is 30 percent.³⁹ Accelerated depreciation will reduce the net capital cost by 36 percent when the ITC is reduced to 10 percent.⁴⁰

The 2016 production cost of residential rooftop solar, commercial rooftop solar, and utility-scale (> 5 MW) solar, based on DOE projections of best-in-class and mid-range capital, are provided in Table 3. These costs are provided with the current ITC of 30 percent and the post-2016 ITC of 10 percent. The calculations supporting these cost ranges are provided in **Attachment A**.

³³ Ibid, p. 4, p. 22 (5 MW system at \$2.03/W),

³⁴ DNV KEMA Energy & Sustainability, *Austin Energy Review of Strategic Plan for Local Solar in Austin*, prepared for Austin Energy, November 22, 2013, p. 8, p. 10, and p. 16. For residential and commercial rooftop -scale solar, the dc-to-ac conversion is assumed to be 85 percent. Utility-scale solar \geq 5 MW has an assumed dc-to-ac conversion of 90 percent.

³⁵ U.S. EIA, Updated Capital Cost Estimates for Utility Scale Electricity Generating Plants, April 2013, Table 1, p.
6.

³⁶ DNV KEMA Energy & Sustainability, *Austin Energy Review of Strategic Plan for Local Solar in Austin*, prepared for Austin Energy, November 22, 2013, p. 8 and p. 10,

³⁷ Ibid, p. 8 and p. 10.

 ³⁸ Solar investment tax credit description: <u>http://www.seia.org/policy/finance-tax/solar-investment-tax-credit</u>.

³⁹ Net capital cost after deducting the 30 percent ITC = 1.0 - 0.3 = 0.7. Corporate tax rate is 40 percent. Therefore accelerated depreciation will reduce net capital cost by: $0.7 \times 0.4 = 0.28$ (28 percent).

⁴⁰ Net capital cost after deducting the 10 percent ITC = 1.0 - 0.1 = 0.9. Corporate tax rate is 40 percent. Therefore accelerated depreciation will reduce net capital cost by: $0.9 \times 0.4 = 0.36$ (36 percent).

		· · · · · · · · · · · · · · · · · · ·	
ITC	Residential rooftop	Commercial rooftop	Utility-scale solar
	production cost range	production cost range	production cost range
	[\$/kWh]	[\$/kWh]	[\$/kWh]
30% (thru 2016)	0.072 - 0.101	0.050 - 0.072	0.036 - 0.041
10% (post 2016)		0.059 - 0.081	0.042 - 0.049
0% (post 2016)	0.097 - 0.137		

Table 3. Production cost with 30 percent ITC through 2016 (all solar projects), 10 percent ITC post 2016 (commercial/utility-scale projects), 0 percent ITC post 2016 (residential)

The post-2016 production cost of commercial rooftop and parking lot solar, at 0.06 - 0.08/kWh, will be about one-half the 0.15/kWh avoided cost in 2017 to replace this solar power as identified by the CPUC. The post-2016 production cost of residential rooftop solar, at 0.097 - 0.137/kWh, will be substantially below the 0.15/kWh avoided cost. Commercial and residential customers will continue to have an economic incentive to install on-site solar after the end of net metering in California and reductions to the federal solar ITC after 2016.

It is reasonable to assume that commercial and residential rooftop solar installation rates will continue to expand in the post-2016 regulatory environment and not contract as assumed in the draft DRECP and DEIR/EIS.

Both the CEC and the draft DRECP and DEIR/EIS assume customer rooftop solar installations will come to a near halt in 2017 due to the end of net-metering and the reduction in the federal ITC for solar projects. This is a mistaken assumption not supported by evidence or current California law that requires "that the standard contract or tariff made available to eligible customer-generators ensures that customer-sited renewable distributed generation continues to grow sustainably."⁴¹

V. California has 100,000 MW of rooftop/parking capacity available to be developed

Approximately 3,000 MW of customer rooftop and parking lot solar had been developed in California by the end of 2014.^{42,43} The estimated customer rooftop and parking lot solar resource potential in California is in the range of 100,000 MW.

Navigant Consulting, under contract to the CEC,⁴⁴ determined in 2007 that California will have about 170,000 MW of total residential rooftop solar potential in 2016, and about 40,000 MW of

⁴¹ Public Utilities Code Section 2827.1(b).

⁴² Renewable Energy World, *California Blows the Lid off Solar Records Installing 1GW of Rooftop Solar in 2013*, January 23, 2014. "California is closing out the year with more than 2,000 MW of rooftop solar systems installed statewide."

⁴³ B. Del Chiaro, CALSEIA e-mail to B. Powers, February 17, 2015, regarding capacity of rooftop solar installed in 2014. "At least a 25 – 30 percent increase over 2013 (when ~1,000 MW_{ac} of net-metered solar installed), final numbers still pending." 1,000 MW + $(0.30 \times 1,000 \text{ MW}) = 1,300 \text{ MW}$.

total commercial rooftop solar potential in 2016. Of these amounts, Navigant assumes only 22 to 27 percent of residential rooftop potential can be developed, and only 60 to 65 percent of the commercial rooftop potential can be developed. This reduces California-wide 2016 rooftop "technical" solar potential to 42,181 MW of residential rooftop solar and 25,708 MW of commercial rooftop solar, a total of approximately 68,000 MW.⁴⁵

Commercial parking lot solar is another major category of customer-side distributed solar. Powers Engineering estimates total commercial parking lot potential in California at 158,000 MW based on data developed at UCLA on number and area of commercial parking spaces per capita in California. Assuming 25 percent of this parking lot potential is relatively free of shading, the net amount of commercial parking lot space that can be developed in California based on the California population in July 2013 is approximately 40,000 MW. See **Attachment B** for commercial parking lot solar potential supporting calculations.

The combined absolute potential of California residential rooftop solar, commercial rooftop solar, and commercial parking lot solar in 2016, assuming no shading, building orientation, or rooftop obstruction impediments, would be approximately 370,000 MW. The combined 2016 technical potential of these three categories of customer-side distributed solar resources, taking into consideration reasonable assumptions regarding shading, building orientation, and rooftop obstructions, is about 108,000 MW.

VI. The distribution grid is undergoing modernization for full two-way flow capability on all distribution circuits

The state's IOUs have had a grid modernization effort underway for many years. Even without this modernization effort, the distribution grid can accept large amounts of customer solar without causing safety equipment such as circuit breakers, relays, and reclosers, to "see" reverse flow on the circuit caused by rooftop solar as a fault condition and affect grid reliability.

As a component of the DG feed-in tariff development process in 2009, the CPUC Energy Division requested data on peak loads at all distribution substations from the IOUs and compiled that information graphically as shown in Figure 1. According to the CPUC, this data was obtained from IOU distribution engineers.⁴⁶ The Energy Division staff opined that because solar is a daytime resource, it was very unlikely that the load on any given distribution substation would be less than 30 percent of peak load when solar power is being generated.

This means that a distribution substation with a 50 MW peak load will have a load of at least 15 MW during the time period when solar power is being produced. Therefore at least 15 MW of distributed solar could be fed to the distribution substation without reversing the normal one-way

⁴⁴ Navigant, *California Rooftop Photovoltaic (PV) Resource Assessment and Growth Potential by County*, PIER Final Project Report, September 2007, APPENDIX B: RESULTS, Table B.1: Technical Potential by County (MWp), p. B-2 and p. B-3.

⁴⁵ Ibid,

⁴⁶ CPUC Rulemaking R.08-08-009 – California RPS Program, Administrative Law Judge's Ruling on Additional Commission Consideration of a Feed-In Tariff, *Attachment A - Energy Division FIT Staff Proposal*, March 27, 2009, pp. 15-16.

flow from the distribution substation and causing older analog protective devices, circuit breakers or relays, to see the flow reversal as a fault condition.

A minimum of approximately 13,300 MW of PV can be connected directly to IOU substation load banks without concern for flow reversal based on the data in Figure 1. The supporting calculations for this estimate are provided in Table 4. The minimum may in fact be much higher, as individual distribution substations and associated circuits may have much higher minimum daylight loads than 30 percent of peak load.

The IOUs provide about two-thirds of electric power supplied in California, with publicly-owned utilities like the Los Angeles Department of Water & Power and the Sacramento Municipal Utility District and others providing the rest.⁴⁷ Assuming the substation capacity pattern in Figure 1 is also representative of the non-IOU substations, the total California-wide PV that could be interconnected at substation low-side load banks with no substantive substation upgrades would be [13,300/(2/3)] = 19,950 MW.



Figure 1. IOU Substation peak loads, 30% of peak load, and 10 MW reference line

⁴⁷ CEC, 2007 Integrated Energy Policy Report, December 2007, Figure 1-11, p. 27.

Table 4. Calculation of distributed PV interconnection capacity to existing IOU substationswith minimal interconnection cost from data in Figure 1

Substation	Number of	Calculation of distributed PV that could be	Total distributed
range	substations	interconnected with minimal substation	PV potential
		upgrades (MW)	(MW)
1-200	200	average peak ~60 MW x 0.30 = 18 MW	3,600
201-500	300	average peak ~45 MW x 0.30 = 13.5 MW	4,000
501-800	300	average peak ~30 MW x 0.30 = 9 MW	2,700
801-1,000	200	average peak $\sim 20 \text{ MW x } 0.30 = 6 \text{ MW}$	1,200
1,001-1,600	600	average peak $\sim 10 \text{ MW x } 0.30 = 3 \text{ MW}$	1,800
		Distributed PV total:	13,300

In sum, a minimum of approximately 20,000 MW of distributed PV interconnection capacity was available in California in 2009 that would require little or no substation upgrading to accommodate the distribution level PV.

The most recent incarnation of this grid modernization effort is known as smart grid deployment. "Smart Grid," as defined in the State of California by Senate Bill (SB) 17 (Padilla, 2009), is a fundamental change in the existing electricity infrastructure that utilizes advances in technology to create a better, safer, greener electricity supply.⁴⁸ The state's IOUs spent more than \$1 billion in fiscal year 2013-2014 on smart grid relative modernization, primarily focused on distribution and transmission system modernization.⁴⁹ The CPUC describes smart grid modernization in the following manner:⁵⁰

Grid modernization in some form has been an ongoing practice of the utilities, where economically feasible and supported via CPUC authorization in the General Rate Case (GRC). New developments in technology, as well as direction from regulators, have emphasized some trends.

The accelerating adoption of customer-side intermittent renewable generation, primarily solar and wind has produced new operational challenges for the grid. In addition, greatly increased small-scale distributed generation is creating more pressure on utilities to change their business models to provide "plug and play" support for these resources. Providing an infrastructure platform for customer choice is becoming a priority.

The new distribution resources planning effort now underway will guide new investment requests in future GRCs to meet these challenges. Distribution Resources Plans will enable much greater use of distributed energy resources (DER) than traditional processes have previously allowed.

⁴⁸ CPUC, Annual Report to the Governor and the Legislature California Smart Grid per Senate Bill 17 (Padilla, 2009), January 2015.

⁴⁹ Ibid, p. 2.

⁵⁰ Ibid, p. 3.

The state's utilities are required to file Distribution Resources Plan applications by July 2015.⁵¹ Distribution Resource Plan implementation by the utilities will require greater situational awareness, monitoring and control sensors and systems to support high penetrations of DER. Investment to support further development of these systems is now required. GRC cycles have begun to incorporate more spending on automation and grid enhancements to further the Smart Grid goals.

Safety hardware on the distribution grid, such as circuit breakers and reclosers, are being methodically replaced with microprocessor-based equivalents that all full two-way power flow on the distribution system. For example, PG&E states in its 2014 Smart Grid Annual Report that 65 percent of its 2,102 distribution circuits are equipped with automation or remote control equipment.⁵² What this means in lay terms is that these circuits are capable of full two-way flow, with no restrictions on the amount of customer on-site solar due to the limitations of safety hardware on the distribution circuit or at the distribution substation.

PG&E also states that it will achieve 100 percent visibility and control of all critical distribution substation breakers by 2018, adding or replacing supervisory control and data acquisition (SCADA) for approximately 393 substations and approximately 1,107 breakers.⁵³ At this pace of grid modernization, full two-way flow capability on the distribution system will not be an obstacle to rapid expansion of customer solar in California.

SCE notes in its 2014 Smart Grid Annual Report on the new energy storage procurement targets the IOUs must meet:⁵⁴

The (October 2013 CPUC energy storage) decision established the policies and mechanisms for procurement of electric energy storage pursuant to AB 2514, setting an energy storage procurement target for the IOUs of 1,325 MW by 2020. Furthermore, the decision directs the IOUs to file separate applications containing a proposal for their first energy storage procurement period by March 1, 2014. SCE submitted its "Application of its 2014 Energy Storage Procurement Plan" and associated testimony on February 28, 2014.

Large amounts of storage on the grid will enhance the ability of the grid to manage variable resources like customer solar.

SCE also reports that as of June 30, 2013 it had 4,617 distribution circuits in operation of which 2,538 are automated with remote control switches. This means that 55 percent of these circuits can be remotely monitored and controlled through SCE's existing distribution management system to protect critical distribution equipment, restore outages, and minimize customer

⁵¹ Ibid, p. 5.

⁵² PG&E, Annual Report of Pacific Gas and Electric Company (U 39 E) on Status of Smart Grid Investments Pursuant to Ordering Paragraph 15 of D. 10-06-047, October 1, 2014, p. 77.

⁵³ Ibid, p. 27.

⁵⁴ SCE, Southern California Edison Company's (U 338-E) Annual Report on the Status of Smart Grid Investments, October 1, 2014, p. 5

minutes interrupted.⁵⁵ These microprocessor-based protective devices also facilitate two-way flow on the distribution circuit.

SDG&E underscores its leadership on smart solar inverters to facilitate much higher levels of customer solar power on the distribution grid:⁵⁶

SDG&E is actively engaged with manufacturers, the CPUC, and CEC to incorporate advanced functionality in inverters and mandate their adoption in California. The proposed inverters would securely communicate with utility operations systems while also potentially addressing the concerns related to the intermittency of solar generation when coupled with the right tariff incentives. In support of the implementation of smart inverters, SDG&E has worked with the other California IOUs on recommendations submitted to the CPUC through the Rule 21 proceeding.

SDG&E also reports that 79 percent of its distribution circuits equipped with automation or remote control equipment, including SCADA systems.⁵⁷ In lay English, this means these distribution circuits are fully capable of handling two-way power flows.

The DRECP relies on the following unsupported and obsolete statements about the current status of the distribution grid as the basis for not including a behind-the-meter customer solar alternative:

Page II.8-7: "For a variety of reasons (e.g., upper limits on integrating distributed generation into the electric grid, cost, lack of electricity storage in most systems, and continued dependency of buildings on grid-supplied power), distributed energy generation alone cannot meet the goals for renewable energy development."

Page II.8-7: "Integration and reliability concerns were highlighted due to local renewable generation being sent to the grid through power lines and equipment that were primarily designed to transport energy in the opposite direction. Unless managed appropriately, the integration of local renewable energy can impact the safe and reliable operation of distribution grids."

Upper limits on integrating distributed generation into the electric grid are rapidly disappearing as a result of utility distribution grid modernization programs. The DRECP targets are for 2040. California's utilities have been mandated to modernize the grid to accept large inflows of local solar power feeding into distribution circuits. Utility customers are spending over \$1 billion per year to accomplish the necessary modernization upgrades. It would appear, based on the most recent IOU smart grid annual reports, that each of the state's three IOUs are more than half way toward having full two-way flow capability on all distribution circuits. It is reasonable to assume,

⁵⁵ Ibid, p. 57.

⁵⁶ SDG&E, Annual Report of SDG&E for Smart Grid Deployments and Investments, October 1, 2014, p. 7.

⁵⁷ Ibid, p. 94.

with the current level of investment, that the utility grid modernization effort will continue to stay in front of the expansion of customer solar power over the next 25 years.

VII. Conclusion

A major flaw in the DRECP is the failure to include a behind-the-meter local solar alternative as the "no action" alternative to the targeted renewable energy generation levels in the DRECP study area for utility-scale solar, utility DG solar, and wind power. The local solar "no action" alternative is the most likely scenario given: current behind-the-meter solar installation rates of more than 1,000 MW per year, the cost-competitiveness of behind-the-meter solar compared to utility power with or without net-metering, state law mandating that the CPUC support sustained growth of behind-the-meter solar installations through appropriate rate design after net-metering expires, and the state's ongoing commitment to smart grid modernization of the existing distribution grid to allow it to fully accept two-way power flows and eliminate distribution grid reliability issues as a brake on customer-provided local solar development. In addition, the local solar "no action" alternative would eliminate the \$140 billion life-of-project cost and environmental impact of 13 to 14 new 500 kV transmission lines assumed in all DRECP

Submitting by:

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Attachment A: Cost of Generation, Commercial, Residential, and Utility-Scale Solar

B. Powers, Powers Engineering, February 22, 2015

I. Commercial rooftop and parking lot solar, cost of generation

Assumptions:

- Annual average fixed array, behind-the-meter capacity factor (CF): 0.20 ٠
- Average annual production per kW_{ac} of capacity at CF of 0.20: 1 kW_{ac} \times 8,760 hr/yr \times 0.20 = 1,752 kWh/yr ٠
- Commercial rooftop solar 2016 DOE best-in-class gross capital cost: \$1,765/kWac •
- Commercial rooftop solar 2016 DOE mid-range gross capital cost: \$2,647/kWac •
- Commercial solar federal income tax credit (ITC) through 2016:¹ 30 percent •
- Commercial solar federal ITC after 2016:² 10 percent •
- Net capital cost when adjusted for accelerated depreciation, commercial solar: (net capital cost after ITC) \times (corporate tax rate) ٠
- Tax rate used to calculate value of accelerated depreciation:³ 40 percent ٠
- Capital recovery factor, 5 percent interest, 20-year term:^{4,5} 0.0802 •
- Residential rooftop solar 2016 DOE best-in-class gross capital cost; \$1,765/kWac ٠
- Residential rooftop solar 2016 DOE mid-range gross capital cost: \$2,647/kWac .
- Residential solar federal income tax credit (ITC) through 2016: 30 percent .
- Residential solar federal ITC after 2016:⁶ 0 percent ٠
- Net capital cost when adjusted for accelerated depreciation, residential solar: No change, not eligible to use accelerated ٠ depreciation

¹ Solar investment tax credit description: http://www.seia.org/policy/finance-tax/solar-investment-tax-credit

² Ibid.

³ Corporate tax rates, all countries: http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx

⁴ Representative commercial construction loan interest rate, ~5% interest, 15-20 year term: https://www.commercialloandirect.com/commercialrates.php#ConstructionLoanInterestRates.

⁵ M. Lindeburg, Mechanical Engineering Review Manual -6^{th} Edition, Chapter 2: Engineering Economy, 1980, p. 2-26

⁶ Solar investment tax credit description: http://www.seia.org/policy/finance-tax/solar-investment-tax-credit.

A. Through 2016, with 30 percent ITC and accelerated depreciation – best in class 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 30% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
1.5.5	1.000		50.42	07.75	07.10	0.050
1,765	1,236	741	59.43	27.75	87.18	0.050

B. Through 2016, with 30 percent ITC and accelerated depreciation – mid-range 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 30% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
2,647	1,853	1,112	89.18	27.75	126.93	0.072

C. After 2016, with 10 percent ITC and accelerated depreciation – best in class 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 10% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
1,765	1,588	953	76.43	27.75	104.18	0.059

D. After 2016, with 10 percent ITC and accelerated depreciation – mid-range 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 10% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
[\$/kW _{ac}]	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
2,647	2,382	1,429	114.61	27.75	142.36	0.081

II. Residential rooftop solar, cost of generation

A. Through 2016, with 30 percent ITC, no accelerated depreciation – best in class 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 30% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
1,765	1,236	NA	99.13	27.75	126.88	0.072

NA = not applicable

B. Through 2016, with 30 percent ITC, no accelerated depreciation – mid-range 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 30% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
2,647	1,853	NA	148.61	27.75	176.36	0.101

NA = not applicable

C. After 2016, with 10 percent ITC, no accelerated depreciation – best in class 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 0% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
1,765	1,765	NA	141.55	27.75	169.30	0.097

NA = not applicable

D. After 2016, with 10 percent ITC, no accelerated depreciation – mid-range 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 0% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
2,647	2,647	NA	212.29	27.75	240.04	0.137

NA = not applicable

III. Utility-scale solar (\geq 5 MW), cost of generation

- Annual average utility-scale solar DRECP capacity factor (CF), 2,150 hr of 8,760 hr/yr: 0.245
- Average annual production per kW_{ac} of capacity at CF of 0.245: 1 kW_{ac} × 8,760 hr/yr × 0.245 = 2,146 kWh/yr
- Commercial rooftop solar 2016 DOE best-in-class gross capital cost: \$1,444/kWac
- Commercial rooftop solar 2016 DOE mid-range gross capital cost: \$1,806/kWac
- Commercial solar federal ITC through 2016: 30 percent
- Commercial solar federal ITC after 2016: 10 percent
- Net capital cost when adjusted for accelerated depreciation, commercial solar: (net capital cost after ITC) \times (corporate tax rate)
- Tax rate used to calculate value of accelerated depreciation: 40 percent
- Capital recovery factor, 5 percent interest, 20-year term: 0.0802

A. Through 2016, with 30 percent ITC and accelerated depreciation – best in class 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 30% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW_{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
1,444	1,011	607	48.68	27.75	76.43	0.036

B. Through 2016, with 30 percent ITC and accelerated depreciation – mid-range 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 30% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kW _{ac} -yr]	$[/kW_{ac}]$	[\$/kWh]
1,806	1,264	759	60.87	27.75	88.62	0.041

C. After 2016, with 10 percent ITC and accelerated depreciation – best in class 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 10% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kWac-yr]	$[/kW_{ac}]$	[\$/kWh]
1,444	1,300	780	62.56	27.75	90.31	0.042

D. After 2016, with 10 percent ITC and accelerated depreciation – mid-range 2016 DOE forecast capital cost:

Gross	Net capital cost	Net capital cost,	Annualized net	O&M cost,	Total annual cost,	Cost of generation,
capital	– 10% ITC,	adjust for accelerated	capital cost, at 5%		capital + O&M,	@ 1,752 kWh-yr per kW _{ac}
cost,		depreciation,	interest, 20 years,			
$[/kW_{ac}]$	$[/kW_{ac}]$	$[/kW_{ac}]$	[\$/kW _{ac} -yr]	[\$/kW _{ac} -yr]	$[/kW_{ac}]$	[\$/kWh]
1,806	1,625	975	78.21	27.75	105.96	0.049
1,806	1,625	975	78.21	27.75	105.96	0.049

Attachment B: Parking Lot Solar Potential in California

B. Powers, Powers Engineering, December 15, 2014

The methodology utilized to calculate the PV technical potential of ground-level parking lots and parking structures in California is shown in Table 1. A core assumption in the methodology is that only 25 percent of total estimated parking surface is sufficiently open, meaning not shaded to a significant degree, so that its full solar potential can be realized. The estimated ground-level parking lot and parking structure PV potential in California, assuming 25 percent of the total surface area is utilized for PV, is 39,500 MW_{ac}.

Assumption	Source
771 vehicles per 1,000 citizens	Dr. Donald Shoup, urban planning, UCLA ¹
At least 4 parking spaces per vehicle, one of which is residential space	Dr. Donald Shoup, urban planning, UCLA
38,332,521	July 1, 2013 California population estimate: http://quickfacts.census.gov/qfd/states/06000.html
162 square feet per parking space	Square footage of typical 9-foot by 18-foot parking space, Envision Solar, San Diego ²
Approximately 88,663,000 non-residential parking spaces in California	Calculated value: $38,332,521 \times (771/1,000) \times 3$ spaces [4 total spaces per car – 1 residential space per car] = $88,663,000$ non-residential spaces
11 W_{ac} per square foot PV capacity per square foot of parking area	Envision Solar, San Diego ³
158,000 MW _{ac} parking lot PV theoretical potential in California without considering shading	88,663,000 spaces \times 162 square feet per space \times 11 W _{ac} per square feet \times 1 MW _{ac} per million W _{ac} = 158,000 MW _{ac} parking lot PV potential
39,500 MW _{ac} actual potential in California	Rough estimate of actual PV potential - assumes 25 percent of non-residential parking spaces are unshaded throughout the day and full PV potential can be realized at these sites

Table 1. Assumptions Used to Estimate PV Potential of Parking Lots - California

¹ Dr. Donald Shoup, *The High Cost of Free Parking*, March 2005, published by American Planning Association, Chapter 1.

² Jim Trauth, Envision Solar, estimate of solar parking lot potential in San Diego County, e-mail to Bill Powers, June 13, 2007.

³ Ibid.

Exhibit 75

DATE: 2-23-15

TO: docket@energy.ca.gov

FROM: Roger Vintze, Co-Chair, Imperial County Environmental Justice Enforcement Task Force; <u>Roger.Vintze@dtsc.ca.gov</u>; Humberto Lugo, Community Co-Chair, Imperial County Environmental Justice Task Force <u>humberto@ccvhealth.org</u>

RE: IMPERIAL COUNTY ENVIRONMENTAL JUSTICE ENFORCEMENT TASK FORCE COMMENTS (ICEJTF)ON DRAFT DRECP NEPA/CEQA EIR/EIS; DOCKET NO.09-RENEW EO-01

At our regular ICEJTF meeting, held on February 19, 2015, a consensus of community members present requested that these DRECP comments be submitted on their behalf.

The ICEJTF requests a revised and re-circulated EIR/EIS, and extended comment period, based on the following list which is limited due to lack of adequate review and response time allowed for such a massive document:

- 1. The ICEJTF represents predominantly rural, underserved, and low-income communities in Imperial and Eastern San Diego Counties that share common resources, watersheds, impacts, and concerns.
- 2. Concerns have been raised over an alarming lack of adequate public notice, disclosure, and real community outreach in the most targeted and impacted communities, the majority of which are populated by minorities.
- 3. Although there have been public meetings, transparency and comprehensive planning efforts are lacking in crafting a final plan. The intent of these meetings should be to help public and agency stakeholder understand the draft plan and to facilitate public input. However, this document is a massive 12,000 pages with gateway maps and geospatial data that are not consistent in addressing Imperial County's geographic location of proposed development and conservation areas.
- 4. The Preferred Alternative has not been assessed properly. Although the objective is to provide a streamlined process, it is unlikely this plan can do both development of utility scale renewable energy generation and transmission consistent with federal and state renewable energy target and policies, while simultaneously providing for the long term conservation and management of covered species and natural communities as well as other physical cultural, scenic and social resources within the plan without reliable environmental and regulatory assurances.
- 5. It is very difficult for the average citizen to navigate or understand the massive DRECP document and related potentially devastating impacts for Imperial County / Eastern San Diego County resources, residents, socio-economic well being and overall public health and safety, especially for non-English speakers.

- 6. The DRECP has not set forth large scale solutions regarding how this Conservation Plan will lessen the impacts of climate change that is putting desert ecosystems and endangered species at risk. Climate Change presents new challenges for managing natural resources and protecting biodiversity. Climate Change affects social development factors such as poverty and is particularly evident in disadvantaged communities such as Imperial County these typical rural isolated communities do not exhibit sufficient financial and technical capacities to manage the risks associated with climate change. (air quality & pollution exacerbate climate change)
- 7. One of the biggest challenges to the deployment of these facilities will be anticipating reductions in water resources in areas that are already waterstressed (drought). Reduction in water availability will have consequences for both geothermal facility operation and for photovoltaic farms and dust deposition on mirrors or panels. It would be wise to use already degraded lands for the development of renewable energy such as brownfields, landfills, mine sites and other types of contaminated lands rather than removing agriculture or disturbing native vegetation.
- Although climate change does not affect everyone equally, the adverse impacts of climate change are expected disproportionately to affect those who are socially and economically disadvantaged, including the poor, the elderly, children, traditional societies, agricultural workers and rural populations(OEHHA)
- 9. DRECP should consider that a recommended means of mitigation would be to require all project applicants to contribute a substantial sum of money to help fund additional air quality monitoring equipment and maintenance, in addition to making funds available for testing for Valley Fever, and to help provide care and medications for those suffering from asthma and allergies and valley fever which are exacerbated by construction activities related to industrial scale renewable energy projects. These environmentally related health impacts could be significant for economically challenged communities. Currently and for the foreseeable future there are no planned studies on health impacts to construction workers or the public in Imperial County for exposure to Valley Fever. Health impacts (valley fever) resulting from air quality impacts related to construction at industrial scale solar energy projects in San Luis Obispo County have been documented by the California Department of Public Health and are expected to be published this spring (email communication from CDPH staff to Harmon).
- 10. Imperial County is one of the poorest in the State and has some of the highest rates of asthma and unemployment. The DRECP may serve to exacerbate those conditions.
- 11. We need additional workshops to discuss potential social change and disruption from construction of utility scale renewable energy projects, public scoping specifically designed to engage minority and low income populations.
- 12. The California Environmental Protection Agency (CalEPA) identifies community capacity building as efforts to engage disadvantaged population to help them better identify and meet the needs of their area. It includes building on existing

skills, providing education on issues and processes and helping them communicate effectively in the public realm

- 13. The DRECP's Preferred Alternative¹ and most other alternatives and Development Focus Areas and transmission corridors disproportionately and cumulatively impact Imperial County's non-renewable irrigated farmland and all the related short-term and long-term jobs and support businesses, as wells as impacted communities in Eastern San Diego County.
- 14. Spreckles Sugar representatives have repeatedly and publicly stated their concerns with a rapidly approaching tipping point, connected to loss of productive farm land, and their ability to stay in business and continue to fully employ over 900 or so local workers.
- 15. Additional conversion of productive agricultural lands, beyond the 20,000 or so Imperial Valley acres already controversially converted, to commercial industrial scale energy/transmission projects will further reduce water flows to the Salton Sea, thereby increasing air quality impacts through increased playa exposure and loss of crop cover and tail water, both of which increase particulates and airborne pathogens as experienced at existing industrial scale solar projects and those that are currently under construction.
- 16. New information on estimates of \$100,000 per acre costs related to failed solar panels and necessary clean up and disposal of special and/or hazardous materials, as reportedly stated by an Imperial County solar project manager at local Board meetings of the Coalition of Labor Ag (COLAB) and Business and the Farm Bureau.
- 17. New information related to unforeseen inferior solar panel failures², reduced energy production rates, and need to replace/reenergize failed panels/projects and to clean up and dispose of massive amounts of potentially hazardous materials.
- 18. The defective solar panel failure³ appears similar in nature to dumping of defective and allegedly toxic Chinese drywall in the US that resulted in adverse health impacts, scandal, and litigation⁴.
- 19. The alleged failure of two large inverters at the Centinella Solar facility, between July 2013 and February 2014, at the cost of \$900,000 per inverter, raise additional concerns over unreported HazMat incidents and need for increased special handling / disposal options.
- 20. New battery Energy Storage Systems (ESS) are required for most new solar projects which can result in major battery installations (1 full size cargo container of batteries per 1MW) and failures which can result in thermal runaway and cascading catastrophic failures resulting in HazMat incidents and the need for special and/or hazardous materials disposal.
- 21. The Department of Energy released a report in December 2013 that documents they are just starting to address reliability and safety issues related to ESS⁵.

¹<u>http://drecp.org/documents/docs/fact_sheets/DRECP_Preferred_Alternative.pdf</u>

² <u>http://www.nytimes.com/2013/05/29/business/energy-environment/solar-powers-dark-side.html?pagewanted=all& r=0</u>

³ <u>http://www.reuters.com/article/2014/01/26/us-china-us-solar-idUSBREA0P03U20140126</u>

⁴ http://content.time.com/time/nation/article/0,8599,1887059,00.html

Those studies should have been completed prior to exposing resources and communities to unknown risks

- 22. Comments on the current Imperial County Renewable Energy and Transmission Element Draft EIR⁶, another massive document, are due on February 25th; *just two days after the DRECP comments are days after DRECP comments are due.*
- 23. CEC's involvement in the DRECP and grant payment for Imperial County's RETE has raised significant concerns over perceived bias to write the RETE to fully support the DRECP that is not in the best interest of Imperial County residents and resources.
- 24. The RETE DEIR relies in large part on, and makes references to, the massive DRECP EIR/EIS document, without proper citations, leaving the reader/reviewer confused and uninformed as to the relevance of the unidentified reference.
- 25. Overall, there are major concerns with water supplies including further water grabs of IID water related to farm to city transfers, and use of hundreds of millions of gallons of precious and ancient groundwater resources from already stressed /over drafted desert aquifers, and failed state promises to fund restoration of the Salton Sea.
- 26. To date, we are unaware of a single wind, solar or transmission project that has been denied within Imperial or San Diego Counties which supports ICEJTF concerns of biased and favorable treatment for applicants over valid community concerns and objections.
- 27. Imperial County and rural Eastern San Diego County always seem to get the raw end of the deal.
- 28. We would prefer to see a new and superior DRECP /RETE alternative focused on increased energy efficiency, conservation, and point-of-use generation, such as roof top solar on new and existing structures, facilities, and on parking lot shade covers, with clean inverters and battery storage. Such an alternative has been clearly expressed and described by numerous DRECP comments including those filed by Basin and Range Watch to which we add our support.

Thank you...

⁵ <u>http://energy.gov/articles/energy-department-releases-grid-energy-storage-report;</u>

http://energy.gov/sites/prod/files/2014/09/f18/Grid%20Energy%20Storage%20December%202013.pdf ⁶ ftp://ftp.co.imperial.ca.us/icpds/eir/cec/draft-renewable-transmission-element.pdf Exhibit 76

Blowback: Wind farms run afoul of neighbors, regulators

By Keith Matheny, Detroit Free Press 11:04 a.m. EST February 24, 2015



(Photo: 2008 photo from Associated Press)

As Michigan increasingly banks on wind power to drive the expansion of its renewable energy portfolio, wind farm projects are increasingly stirring up turbulence with the people next door to the turbines.

Most recently, neighbors of a 14-turbine wind farm in the Upper Peninsula community of Garden filed a lawsuit against the developer in U.S. District Court last month, alleging the project's noise has harmed their quality of life and property values. In Huron County in Michigan's Thumb — a focal point for state wind development — county officials are tearing up an "inadequate," less than 10-year-old wind energy ordinance because, in the words of the county commissioners' chairman, "people's rights (are) being violated."

The entire Garden Wind Farm by Heritage Sustainable Energy, on the Garden Peninsula in the U.P., is within 3

miles of Lake Michigan and about 20 of 50 wind turbines in the Apple Blossom project in the Thumb are proposed within the same proximity of Lake Huron. That's despite recommendations from the U.S. Fish and Wildlife Service to avoid a 3-mile zone around the shoreline of the Great Lakes, because though it provides optimal winds for energy production, it also includes corridors for bird and bat movement — including federally protected, threatened and endangered species, and bald and golden eagles.

"Huron County has the highest density of wind development of any county in Michigan," said Jeff Gosse, regional energy coordinator for the U.S. Fish and Wildlife Service.



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(http://www.freep.com/story/money/business/michigan/2015/02/22/third-fermi-reactor-doomed-gas/23776681/)

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An ill wind blows. (Photo: Martha Thierry, Detroit Free Press)

"If developers are going to start building in that 3-mile buffer, one can expect there will be heavy development within that buffer — not one or two developments, but others following suit."

As Michigan considers how and whether to extend and expand its renewable portfolio standard, requiring utilities to obtain 10% of their energy from renewable sources by this year, the state is relying heavily on wind to meet the requirements. In 2013, wind projects accounted for more than 90% of Michigan's clean energy installations, according to a study released last fall by the Pew Charitable Trusts. The state's wind energy capacity is expected to rise by about 75% over the next decade, the study projects.

Dustups over wind farms: Turbines blamed for noise, dead birds

Even a wind turbine developer recognizes that will lead to more conflicts with neighbors.

"I think we're going to get push-back from people," said Heritage CEO Martin Lagina.



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Michigan's energy future

(http://www.freep.com/topic/aa1b9812-9b9d-4791-92b4-95cf529327c6/energy-future/)

Quality of life

Residents who formed the neighborhood group Garden Peninsula Foundation filed a federal lawsuit against Traverse City-based Heritage Sustainable Energy and the Fish and Wildlife Service last month, alleging Heritage's Garden Wind Farm in the peninsula's farmlands will kill protected and endangered species such as the Kirtland's warbler, piping plover and the northern long-eared bat.

The turbines have also hurt the quality of life in the community, said Michelle Halley, an attorney representing wind farm neighbors.

"It impacts residents' enjoyment of their own property — they're losing sleep because of the turbines' noise," she said, adding property values will suffer with the wind farm's presence.

U.S. Fish and Wildlife Service East Lansing office director Scott Hicks said his agency has "consistently recommended" throughout Michigan avoiding installing wind turbines in a 3-mile area around the Great Lakes, including "numerous recommendations" to Heritage.

That raised the ire of Heritage's Lagina.

"The project is there because we built it where U.S. Fish and Wildlife said to build it," he said. He cited a 2009 letter from the agency that called the location a "preferred site" and provided more specific information on where turbines should and shouldn't go in the peninsula area.

"They absolutely, categorically flipped 180 degrees in 2011, and they would have bankrupted us if we had stopped at that point," Lagina said.

Despite "dire predictions" of bird kills, two years of operating the turbines has shown few dead birds, he said, though exact numbers were not provided to the Free Press.

"We kill less birds than the average Midwestern wind farm that is supposedly properly sited," he said. "The houses on the Garden Peninsula kill more, by impacts with windows. Anybody with a cat kills more."



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Michigan's wind energy industry soaring

(http://archive.freep.com/article/20140629/BUSINESS06/306290068/wind-alternative-energy-michigan-epa)



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Michigan's new tourist attraction? Like them or not, wind turbines

(http://archive.freep.com/article/20131020/FEATURES/310200073/Michigan-s-new-tourist-attraction-Like-them-not-wind-turbines)

While acknowledging noise from turbines can be an issue, Lagina said it's "subjective."

"What you might consider noise is a lullaby to somebody else," he said.

Similarly, while some like the sight of wind turbines, and the energy independence and sustainable power they represent, others are less enamored, Lagina said.

"There are people who absolutely hate wind turbines, and I believe the issues are all aesthetic," he said. "If you decide you do not like wind turbines — it's big, you can see it from far away. And some people do not like them in their backyard; there's big NIMBY-ism going on."

The U.S. Audubon Society lists the No.1 threat to birds as "human-induced climate change," Lagina said. And shore birds such as the red knot and

Dustups over wind farms: Turbines blamed for noise, dead birds

piping plover are most threatened by rising sea levels, he said.

"If they shut down that wind farm, we're going to burn more coal — that's a fact," he said.

The neighbors' lawsuit seeks an injunction against allowing construction of additional turbines, and other unspecified monetary damages.

Halley noted that wind developers, if concerned about taking endangered species, can apply for "take" permits that require a Fish and Wildlife Service analysis and examination of alternatives. Heritage did not seek such permits, she said.

"The bottom line is, these companies have a responsibility to their shareholders," she said. "If they can locate their facilities in order to maximize profits, I think they are willing to take risks to do it. It's easier to get forgiveness than permission."

Moratorium considered

The Huron County Planning Commission has scheduled a March 4 hearing to consider a six-month moratorium on wind energy development in the county, allowing for a reworking of the county's wind energy zoning ordinance.

"It's inadequate," said Huron County Board of Commissioners Chairman John Nugent of the existing ordinance, enacted in 2006.

"There were too many of them, too quick. It ended up with people's rights being violated — setbacks were a problem with a lot of people, they were too close to their home. And they infringe on the shoreline, which is unacceptable."

Huron County is part of the Thumb area designated Michigan's "primary wind energy resource zone" through a 2008 state law. It was deemed by an appointed panel to have the best wind energy generating capacity. But Nugent said he thinks other factors were involved as well: the region is generally poorer, agrarian, sparsely populated and with little political clout.

"It was ripe for the taking," he said. "You can't pull this off in Traverse City."

Since the designation, commercial-scale wind farm development has soared in the Thumb region — 15 of the state's 22 wind farms are located there, more than 71% of the entire state's wind generation.

"The attitude has changed with the developers," Nugent said. "The early developments were hit-and-get, put as many turbines as they could. It was just a mess — poorly conceived, and enabled by a poorly structured ordinance."

The zoning was missing provisions to create a buffer zone along the Lake Huron shoreline and known bird and bat flyways, Nugent said. Setbacks from turbines were also calculated measuring from a neighbor's occupied dwellings, not their property line — which would then prevent a turbine's neighbor from further developing their land between their home and the spinning blades.

"It's a taking of their property," Nugent said.

The old ordinance also contained noise provisions "so poorly crafted, you couldn't understand it."

But the proposed moratorium will not apply to two in-development but not yet constructed wind farms, including Geronimo's Apple Blossom Wind Farm project, which calls for up to 20 turbines within 2 miles of Lake Huron.

"Our attorney says they were approved under the existing zoning ordinance," Nugent said. "He felt it was unethical and maybe illegal to deny them the ability to continue. It's not going down well with many people."

That includes Monica Essenmacher, founder of Point Crest Hawk Watch, a nonprofit group based in Port Austin that counts hawks on their annual migration along Lake Huron.

"Birds will die — eagles, endangered species," she said. "The science is in, the research that's been done in Huron County proves conclusively that this is a nocturnal bird and bat migratory zone."

Exempting the two wind farm projects from the upcoming moratorium "is wrong, if not illegal," she said.

Requests for an interview with Geronimo were responded to with a statement from spokeswoman Lindsay Smith.

While Fish and Wildlife's 3-mile Great Lakes buffer is "not mandatory, we are considering it as we continue to develop our Apple Blossom project," she said.

http://www.freep.com/story/news/local/michigan/2015/02/23/wind-energy-farms-renewable-bird-bat-kil... 2/24/2015

Dustups over wind farms: Turbines blamed for noise, dead birds

Smith added that Geronimo has been using Fish and Wildlife guidelines in the development of its wind farm, including "extensive surveys for birds and bats" over the past four years. The company will seek input from Fish and Wildlife on its bird and bat conservation strategy, she said.

While Hicks agreed Geronimo officials have been in contact with Fish and Wildlife, "contact doesn't necessarily mean they are agreeing to implement all of our recommendations," he said.

More development

Wind energy is one of the fastest-growing sources of impacts to wildlife, Gosse said.

"The Department of Energy has stated a goal to increase wind development five-fold over what we've got right now," he said. "That's part of our concern, not that a wind turbine is taking birds and bats, but when you build more and more and they face more and more unsafe areas to fly."

Nugent said local governments like his have to take lessons from what's happened and prepare for what's coming.

"More consideration has to be given to those who are negatively impacted than has been in the past," he said. "We have to respect all people, not just the wind developer and the landowner who's making a profit off of it. Because everybody is impacted in one way or another."

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