COUNTY OF SAN BERNARDINO

DAGGETT SOLAR POWER FACILITY

FINAL ENVIRONMENTAL IMPACT REPORT

SCH No. 2018041007

Lead Agency:

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September 2019

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TABLE OF CONTENTS

Section 1.0 Introduction to the Environmental Analysis 1-1

1.1 Introduction 1-1

1.2 Organization of the Final EIR 1-1

1.3 CEQA Process Summary 1-1

1.4 Changes to the Draft EIR 1-2

Section 2.0 Comment Letters and Responses to Comments 2-1

2.1 Introduction to Comments and Responses 2-1

2.2 Comment Letters and Responses to Comments 2-3

Section 3.0 Errata 3-1

3.1 Introduction to the Errata 3-1

3.2 Changes to the Draft EIR 3-1

Section 0.3, Table of Contents 3-1

Section ES, Executive Summary 3-1

Section 2.0, Project Description 3-2

Section 3.3, Air Quality 3-3

Section 3.4, Biological Resources 3-7

Section 3.5, Cultural, Tribal Cultural, and Paleontological Resources 3-12

Section 3.8, Hazards and Hazardous Materials 3-12

Section 3.9, Hydrology and Water Quality 3-14

Section 3.10, Land Use and Planning 3-15

Section 3.12, Transportation 3-17

3.3 Additional Technical Memorandums 3-18

LIST OF APPENDICES

Appendix L: Air Quality Risk Assessment
Appendix M: Solar Power Installation Effects on Avionics
Appendix N. Updated Grading Memorandum

LIST OF TABLES

Table 2.0-1: Comments from Public Agencies, Organizations and Individuals 2-1

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Section 1.0
Introduction to the Environmental Analysis

1.1 INTRODUCTION

The Final Environmental Impact Report (Final EIR) for the Daggett Solar Power Facility Project (project) has been prepared in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000 et seq.), and the CEQA Guidelines (14 California Code of Regulations, Division 6, Chapter 3). CEQA Guidelines Section 15132 indicates that the contents of a Final EIR shall consist of:

- The Draft EIR or a revision of the Draft EIR;
- Comments and recommendations received on the Draft EIR, either verbatim or in summary;
- A list of persons, organizations, and public agencies commenting on the Draft EIR;
- The responses of the lead agency to significant environmental points raised in the review and consultation process; and
- Any other information added by the lead agency.

The Draft EIR and the Final EIR, along with public comments, will be considered by the County of San Bernardino in determining whether to certify the Final EIR and approve the project.

1.2 ORGANIZATION OF THE FINAL EIR

This Final EIR provides the requisite information required under CEQA and is organized as follows:

- **Section 1.0 Introduction to the Environmental Analysis.** This section introduces the Final EIR, including the requirements under CEQA, and to the organization of the document, as well as a summary of the CEQA process activities to date.
- **Section 2.0 Comment Letters and Responses to Comments.** This section lists the public agencies, organizations, and individuals commenting on the Draft EIR, provides a copy of each written comment received, and includes any response required under CEQA.
- **Section 3.0 Errata.** This section details changes to the Draft EIR.

1.3 CEQA PROCESS SUMMARY

Pursuant to CEQA, the discussion of potential effects on the environment is focused on those impacts that the lead agency determined could be potentially significant. On March 26, 2018 the County issued a Notice of Preparation (NOP) to inform agencies and the general public that a Draft Environmental Impact Report (Draft EIR) was being prepared and to invite comments on the scope and content of the document and participation at a public scoping meeting held April

11, 2018. The NOP was distributed to state and local agencies, responsible and trustee agencies, interested parties, and organizations. The NOP public review period was from March 26, 2018 through April 26, 2018 consistent with the CEQA-required 30-day comment period.

The Draft EIR includes an in-depth evaluation of eleven environmental resource areas and other CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, alternatives, impacts that are less than significant). The eleven environmental issue areas upon which the EIR focuses include aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, noise, and transportation and traffic circulation.

The County released the Draft EIR to the public on March 15, 2019, for a 45-day review ending on April 29, 2019. During the public review period, the Draft EIR was available for review on the County's website at http://cms.sbcounty.gov/lus/Planning/Environmental/Valley.aspx. Additionally, hard copies were available at the County Land Use Services Department, Planning Division at 385 North Arrowhead Avenue, San Bernardino, CA 92415, San Bernardino County High Desert Government Center, 15900 Smoke Tree Street, Suite 1311, Hesperia, CA 92415, San Bernardino County Library, Barstow Ranch, 304 E. Buena Vista Street, Barstow, CA 92311 and the Daggett Community Services District, 35277 Afton Street, Daggett, CA 92327. See Attachment A2 for the Notice of Availability.

Comments received on the Draft EIR have been incorporated into the Final EIR document. The County will review and consider the Final EIR. If the County finds that the Final EIR is "adequate and complete," the County may certify the Final EIR. The rule of adequacy generally holds that the EIR can be certified if it: (1) shows a good faith effort at full disclosure of environmental information; and (2) provides sufficient analysis to allow decisions to be made regarding the project in contemplation of its environmental consequences.

Upon review and consideration of the Final EIR, the County may take action to adopt, revise, or reject the proposed project. A decision to approve the proposed project would be accompanied by written findings (Findings of Fact) in accordance with State CEQA Guidelines Section 15091. Public Resources Code Section 21081.6 also requires lead agencies to adopt a Mitigation Monitoring and Reporting Program (MMRP) to describe measures that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The Findings of Fact and the MMRP are available under separate cover.

1.4 CHANGES TO THE DRAFT EIR

Section 3.0, Errata, details the changes to the Draft EIR in response to comments received from the public and agencies. The changes to the Draft EIR represent minor modifications and clarifications to the existing content.

CEQA Guidelines Section 15088.5 describes when an EIR requires recirculation prior to certification, stating in relevant part:

(a) A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification. As used in this section, the term "information" can include changes in the project or environmental setting as well as additional data or other information. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement.

(b) Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

The changes to the Draft EIR described herein clarify or make insignificant changes to an adequate EIR, and do not constitute significant new information, as defined by CEQA Guidelines Section 15088.5. Therefore, the Draft EIR is not subject to recirculation prior to certification.

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Section 2.0
Comment Letters and Responses to Comments

2.1 Introduction to Comments and Responses

Table 2.0-1 below provides a list of those parties that provided written comments on the Draft EIR during the public review period. A copy of each comment letter is provided in this section. Comments contained in each letter have been numbered for ease of reference to the County's corresponding response that follows. Further information on the comment letters, such as the page number where the comment letters appear in this section, can be found in Table 2.0-1 below.

Table 2.0-1:
Comments from Public Agencies, Organizations and Individuals

Letter Number	Organization/Name	Date of Letter	Page Number
Agencies			
1	State Clearinghouse and Planning Unit	April 30, 2019	2-33
2A	California Department of Fish and Wildlife	April 29, 2019	2-35
2B	California Department of Fish and Wildlife	May 08, 2019	2-61
3	Mojave Basin Area Watermaster	April 29, 2019	2-68
4	Mojave Desert Air Quality Management District	March 20, 2019	2-90
5	Morongo Band of Mission Indians	April 29, 2019	2-93
6	Newberry Community Services District	March 26, 2019	2-95
7	Newberry Springs Fire Department	May 08, 2019	2-108
Organizations			
8	Barstow Airport Aviation Safety Committee	April 29, 2019	2-111
9	Basin and Range Watch	April 06, 2019	2-115
10	Basin and Range Watch	April 29, 2019	2-117
11	BNSF Railway	April 29, 2019	2-133
12	CEQA-NOW	March 7, 2019	2-136
13	CEQA-NOW	March 16, 2019	2-141
14	CEQA-NOW	March 19, 2019	2-158
15	CEQA-NOW	March 27, 2019	2-163
16	CEQA-NOW	March 30, 2019	2-171
17	CEQA-NOW	April 01, 2019	2-181
18	CEQA-NOW	April 05, 2019	2-185
19	CEQA-NOW	April 10, 2019	2-189
20	CEQA-NOW	April 16, 2019	2-192
21	CEQA-NOW	April 20, 2019	2-196
22	CEQA-NOW	April 29, 2019	2-207
23	California Unions for Reliable Energy (CURE)	April 29, 2019	2-210
24	Desert Tortoise Council	April 26, 2019	2-213
25	Lucerne Valley Economic Development Association	March 29, 2019	2-222

Table 2.0-1, continued

Letter Number	Organization/Name	Date of Letter	Page Number
26A	Morongo Basin Conservation Association	April 29, 2019	2-231
26B	Morongo Basin Conservation Association	April 29, 2019	2-250
27	Newberry Springs Economic Development Association	April 29, 2019	2-287
28	Save Our Mojave	April 29, 2019	2-299
29	Save Our Mojave	April 29, 2019	2-305
Individuals			
30	Gaye Burch	March 18, 2019	2-320
31	Paul Deel	March 20, 2019	2-322
32	Paul Deel	April 15, 2019	2-325
33	Paul Deel	April 17, 2019	2-327
34	Paul Deel	April 27, 2019	2-331
35	Paul Deel	April 29, 2019	2-335
36	Paula Deel	April 27, 2019	2-454
37	Butch Farrington	April 15, 2019	2-457
38	Brian Fisher	April 26, 2019	2-464
39	Brian Fisher	April 26, 2019	2-466
40	Brian Fisher	April 26, 2019	2-469
41	Brian Fisher	April 26, 2019	2-471
42	Brian Fisher	April 26, 2019	2-474
43	Brian Fisher	April 27, 2019	2-476
44	Brian Fisher	April 29, 2019	2-486
45	Debra Hughson	April 14, 2019	2-489
46	Ali Jones	April 23, 2019	2-494
47	Darrellene Landrus	March 21, 2019	2-496
48	Leonard Moore	April 28, 2019	2-499
49	Virginia Padilla	April 29, 2019	2-501
50	Mieke Paulsen	April 23, 2019	2-507
51	Vickie Paulsen	April 23, 2019	2-509
52	Vickie Paulsen	April 27, 2019	2-521
53	Alisa Ramakrishnan	April 25, 2019	2-545
54	Kathy Ridler	April 23, 2019	2-547
55	Margie Roberts	April 29, 2019	2-554
56	Robert Shaw	March 17, 2019	2-556
57	Ronnie Shaw	April 15, 2019	2-558
58	Ronnie Shaw	April 23, 2019	2-563
59	Robert Shaw	April 29, 2019	2-568
60	Ted Stimpfel	April 29, 2019	2-574
61	Stephen A Stokes	April 29, 2019	2-590
62	Jack Unger	April 29, 2019	2-595

2.2 COMMENT LETTERS AND RESPONSES TO COMMENTS

Each comment letter is provided below, followed by the County's corresponding response(s). Due to the occurrence of multiple comments on a few specific subject areas, Master Responses were prepared to describe the subject areas in more detail and to address all concerns regarding the topic. Master Reponses are listed in the beginning of the section and are referenced in each corresponding comment throughout the Responses to Comments.

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MASTER RESPONSE 1 – AIR QUALITY

The project's air quality impacts are addressed in Section 3.3, Air Quality, and in **Appendices D-1** and **D-2**, of the EIR. As stated in Impact 3.3-1 of the EIR, the project would exceed the Mojave Desert Air Quality Management District (MDAQMD) maximum daily emission threshold for PM_{10} and $PM_{2.5}$ (fugitive dust) during construction; refer to **Table 3.3-5** provided below and in the DEIR, as well as the focused fugitive dust discussion in Master Response 8. "PM," which stands for particulate matter, includes airborne soils and dust caused by ground disturbance as well as particulates contained in vehicle exhaust. Since the project exceeds the MDAQMD daily emissions threshold, the project will be required to implement mitigation measures **AIR-1** and **AIR-2** to reduce construction-generated emissions. Mitigation measure **AIR-1** would reduce air quality impacts by requiring implementation of a County-approved Air Quality Construction Management Plan that outlines required fugitive dust control measures. Mitigation measure **AIR-2** would reduce air quality impacts by requiring compliance with the US Environmental Protection Agency's final Tier 4 exhaust emission standards thereby minimizing emissions of particulates from vehicle exhaust. However, as is typical for many large-scale construction projects, such mitigation would not reduce air quality impacts from construction emissions to a less than significant level.

In addition to the implementation of mitigation measure **AIR-1**, the applicant would be required to comply with specific measures in the County Development Code Chapter 84.29, Renewable Energy Generation Facilities, to cease activities when winds are greater than 20 miles per hour, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property. These measures are specifically designed to address construction in a windy, desert environment. The measures, included in mitigation measure **AIR-1,** are provided below.

AIR-1 Prior to the issuance of grading permits, the project applicant shall submit an Air Quality Construction Management Plan to the County for review and approval. The plan shall describe the fugitive dust control measures which would be implemented and monitored at all locations of proposed project construction. The plan shall comply with the mitigation measures described in the Fugitive Dust Control Rules enforced by the Mojave Desert Air Quality Management District (MDAQMD) (Rules 403 and 403.2), San Bernardino County Development Code Sections 83.01.040 and 84.29.035, as well as the existing State Implementation Plan available for PM_{10} and $PM_{2.5}$. The plan shall be incorporated into all contracts and contract specifications for construction work. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:

- Describing each active operation that may result in the generation of fugitive dust.
- Identifying all sources of fugitive dust, e.g., earthmoving, storage piles, vehicular traffic.

- Describing the control measures to be applied to each of the sources identified. The descriptions shall be sufficiently detailed to demonstrate that the best available control measures required by air districts for solar projects are used.
- Providing the following control measures, in addition to or as listed in the applicable rules, but not limited to:
    - Manage and limit disturbance of ground surfaces from vehicle traffic, excavation, grading, vegetation removal, or other activities to lower the potential for soil detachment and reduce dust transport. Maximize the use of compaction methods rather than the removal of top soil other than in areas where excavation or grading are required. This process referred to as mow-and-roll (agricultural land) or plate-and-roll (native vegetation) lessens the level of ground disturbance and leaves the root system in place for quicker regeneration of vegetative cover.
    - Maintenance and access vehicular roads and parking areas shall be stabilized with water, chemicals or gravel or asphaltic pavement sufficient to minimize visible fugitive dust from vehicular travel and wind erosion and comply with MDAQMD Rule 403.2. Actions, including sweeping sealed roads, use of stabilized construction/facility entrances, and, if needed, using one or more entrance/exit vehicle tire wash apparatuses, shall be taken to prevent project-related track-out. Any project-related track-out must be cleaned within 24 hours.
    - Perimeter fencing, in locations as shown on Exhibit 3.3-1, shall be wind fencing or the equivalent, to a minimum of 4 feet of height of perimeter fencing in the areas identified in the Wind Fencing Plan. The owner/operator shall maintain the wind fencing as needed to keep it intact and remove windblown dropout. Strategically placed wind barrier fencing, to be constructed as part of the construction and operation phases (in locations shown in **Exhibit 3.3-1, Wind Fence Locations**) would be maintained to minimize dust blowing in the direction of the adjacent residences or the Barstow-Daggett Airport.
    - Use natural vegetation to stabilize disturbed or otherwise unstable surfaces to the extent feasible. A water truck shall be used to maintain most disturbed surfaces and to actively spread water during visible dusting episodes to minimize visible fugitive dust and limit emissions to 20 percent opacity in areas where grading occurs, within the staging areas, and on any unpaved roads. For projects with exposed sand or fines deposits (and for projects that expose such soils through earthmoving), chemical stabilization or covering with a stabilizing layer of gravel may be required to eliminate visible dust/sand from sand/fines deposit, if water application does not achieve stabilization. Other controls could include application of hydromulch (with

seed for re-establishment of vegetation), application of soil binders, or the use of soil cement for particularly unstable areas.

- Minimize the idling time of diesel-powered construction equipment to two minutes, except in extreme heat events where workers require conditioned air to avoid health and safety issues.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- On-site vehicle speed shall be limited to 15 miles per hour.
- The following signage shall be erected not later than the commencement of construction:

  A minimum 48-inch-high by 96-inch-wide sign containing the following information shall be located within 50 feet of each project site entrance, meeting the specified minimum text height, black text on white background, on 1-inch A/C laminated plywood board, with the lower edge between 6 and 7 feet above grade, with the contact name of a responsible official for the site and a local or toll-free number that is accessible 24 hours per day.

  "Site Name" (4-inch text)
  "Project Name/Project Number" (4-inch text)
  IF YOU SEE DUST COMING FROM THIS PROJECT, CALL: (4-inch text)
  [Contact Name]. PHONE NUMBER: XXX-XXX-XXXX (6-inch text)
  IF YOU DO NOT RECEIVE A RESPONSE, PLEASE CALL the MDAQMD at 1-800-635-4617. (3-inch text)

- The project applicant or its designated representative shall obtain prior approval from the MDAQMD prior to any deviations from fugitive dust control measures specified in the approved Air Quality Construction Management Plan. A justification statement used to explain the technical and safety reason(s) for the substitute dust control measures required shall be submitted to the appropriate agency for review.
- The provisions of the Air Quality Construction Management Plan shall also apply to project decommissioning activities.

Table 3.3-5, Mitigated Construction Emissions by Stage (Pounds per Day), lists the construction emissions after implementation of the mitigation measures. As shown, construction emissions would continue to exceed the thresholds for PM_{10} and $PM_{2.5}$.

Table 3.3-5:
Mitigated Construction Emissions by Stage (Pounds per Day)

Construction Stage	CO	ROG/VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Stage 1	17.1	4.8	82.2	0.2	402.0	86.0
Stage 2	68.7	3.3	40.0	0.2	9.0	8.7
Stage 3	17.8	0.7	7.5	0.0	2.2	2.2
Peak Day	103.6	8.8	129.7	0.4	413.2	96.9
MDAQMD Threshold	548	137	137	137	82	65
Exceedance?	No	No	No	No	Yes	Yes

Source: HDR 2019

The proposed project would be constructed in a nonattainment area for multiple pollutants. Therefore, emissions from project construction would contribute incrementally to existing exceedances of the air quality standards. As shown in **Table 3.3-5**, even with mitigation measures **AIR-1** and **AIR-2**, construction emissions would exceed the MDAQMD's thresholds for PM_{10} and $PM_{2.5}$. Therefore, this impact is considered significant and unavoidable. Air quality impacts have been properly disclosed in the EIR; see Impacts 3.3-1 and 3.3-2.

In addition to mitigation measures **AIR-1** and **AIR-2**, mitigation measure **AIR-3** would be implemented to control wind erosion on-site during operations. Wind erosion could cause dust to move from the site to nearby receptors at residences where the airborne particulates can be inhaled by residents. Mitigation measure **AIR-3** requires the applicant to develop a Dust Control Plan to address impacts from project operation. Similar to mitigation measure **AIR-1**, mitigation measure **AIR-3** includes measures such as the installation of wind fencing (see Exhibit 3.3-1, Wind Fence Locations) and surface treatments for areas where natural vegetation has been removed, as well as vehicle speed limits which would reduce air quality impacts during project operations.

These dust control measures have been prepared in consultation with the County on the basis of site-specific conditions and are considered to be the best available to reduce fugitive dust from construction as well as during the operations in a desert environment. The project sponsor will be required to submit a revegetation plan for County review and approval prior to initiating construction for implementation during the decommissioning phase. After construction, areas of sandy soils that disturbed such that they are unstable will be stabilized through re-vegetation, application of soil binders or other method acceptable to the County.

During operations, the solar project is expected to generate lower fugitive dust emissions when compared to current agricultural operations. Implementation of best available dust control measures would reduce impacts related to wind-transported materials to less than significant during operations. Although impacts from windblown sand already occur on-site, the possibility that impacts could be exacerbated by the project was examined in the EIR. Analysis in **Appendix D-2** of the EIR concludes that the installation of the panels and other equipment could decrease existing levels of windblown dust. The solar equipment on site is expected to slow the wind and

wind-blown sand moving across the site. The piles supporting the solar panels will particularly contribute to blocking some of the wind-blown dust as will other facilities, including the invertors and substations (Dust Control Technical Memorandum, Appendix D-2, p. 9.).

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the MDAQMD develops and implements plans for future attainment of ambient air quality standards. Based on the fact that the basin is already in nonattainment for O_3, PM_{10}, and $PM_{2.5}$, and other similar projects could result in emissions that further exceed the MDAQMD thresholds for these pollutants, construction of this project, along with the other projects identified in Table 3.0-1, Cumulative Projects, could result in a cumulatively considerable increase in emissions of nonattainment pollutants. Therefore, cumulative construction impacts would be significant (during construction) and the project's contribution to these significant cumulative impacts would be cumulatively considerable. Implementation of mitigation measures **AIR-1** to **AIR-3** would reduce the project's incremental contribution to exceedances of the air quality standards during construction. However, even with mitigation measures **AIR-1** and **AIR-2**, impacts as a result of project construction activities would remain significant and unavoidable (see Impact 3.3-5 of the EIR).

Operation of the proposed solar farm would result in substantially lower emissions than project construction because the proposed project would have no major stationary emission sources. The proposed facility does not burn fossil fuel to generate electricity and as a result does not produce a significant amount of emissions. Long-term operation of solar power-generating facilities would result in a decrease of harmful emissions such as carbon dioxide, nitrogen dioxide, sulfur dioxide, mercury, and particulates since it would offset otherwise needed fossil fuel-based energy production. In addition, the solar facility would replace agricultural uses that likely use fossil fuel-derived pesticides, and which require the use of fossil fuel burning farm equipment which generates emissions in agricultural operations. In addition, implementation of mitigation measure **AIR-3** would reduce impacts related to wind-transported materials**.**

Additionally, analyses in the Draft EIR conservatively estimated that 5 million cubic yards of soil would be moved during grading. However, based on the updated design, the applicant plans to reduce the amount of grading on the site to the following: Phase 1: 200,000 cubic yards; Phase 2: 200,000 cubic yards; Phase 3: 150,000 cubic yards; and gen-tie: 10,000 cubic yards. Based on the updated grading techniques described above, the actual amount of grading on the site is now estimated as follows: Phase 1: 200,000 cubic yards; Phase 2: 200,000 cubic yards; Phase 3: 150,000 cubic yards; and gen-tie: 10,000 cubic yards. Total grading would be approximately 560,000 cubic yards instead of the estimated 5 million cubic yards stated in the Draft EIR (see **Appendix N, Updated Grading Memorandum**). However, the construction emissions and corresponding impacts and mitigation requirements detailed in Section 3.3, Air Quality, have not been modified (thus, they conservatively over estimate emissions attributed to grading).

Responsive to Comments: 4-2, 6-8, 6-13, 10-13, 10-16, 13-18, 18-1, 20-7, 25-2, 25-3, 25-6, 25-7, 25-9, 25-13, 26B-22, 26B-23, 26B-24, 26B-26, 26B-29, 26B-32, 26B-34, 26B-35, 27-17, 27-18, 29-18, 29-19, 31-3, 37-6, 37-7, 37-12, 41-2, 45-4, 47-3, 48-2, 49-1, 49-7, 51-3, 51-4, 51-6, 51-7, 51-8,

51-9, 51-10, 51-12, 51-15, 51-16, 54-4, 54-10, 57-1, 57-3, 57-6, 58-3, 58-4, 58-8, 58-9, 59-3, 59-4, 59-5, 59-6, 60-4, 60-5, 60-12, 61-2, 61-5, 61-9

MASTER RESPONSE 2 – VALLEY FEVER

Valley Fever is discussed in the DEIR on pages 3.3-27 and 3.3-28. Acute coccidioidomycosis, more commonly known as Valley Fever, is an illness caused by a fungus found in the soil and dirt of some areas of the southwestern United States and in parts of Mexico and Central and South America. It can cause fever, chest pain, and coughing, among other signs and symptoms. In California, the fungus is found in many areas of the San Joaquin Valley (Central Valley).

The fungi's spores can be stirred into the air by anything that disrupts the soil, such as farming, construction, and wind. The fungi can then be breathed into the lungs and cause Valley Fever. Mild cases of Valley Fever usually resolve on their own. In more severe cases, doctors prescribe antifungal medications that can treat the underlying infection.

San Bernardino County is not considered a highly endemic region for Valley Fever. A report prepared by the California Department of Public Health (CDPH) identified that only 85 of the 7,466 suspected, probable, and confirmed annual cases of coccidioidomycosis recorded for California in 2017 occurred in San Bernardino County (CDPH 2018). The project received a comment letter from the MDAQMD in which the MDAQMD recommended additional mitigation measures to reduce fugitive dust only; see Letter 4. Mitigation measures for Valley Fever, including site visits and sampling as mentioned in some of the comment letters, were not included in the MDAQMD letter. During construction, operation, and decommissioning phases of the project, the implementation of mitigation measure AIR-1 and AIR-2 would provide significant control of fugitive dust emissions and limit the potential for exposure. Therefore, potential exposure to Valley Fever is reduced through implementation of dust control mitigation measures and standard MDAQMD rules.

Responsive to Comments: 10-14, 10-15, 19-2, 26B-30, 49-7, 61-9

MASTER RESPONSE 3 – HEALTH RISK ASSESSMENT

As stated in Impact 3.3-3, a health risk assessment (HRA) was performed to assess the impact of construction on sensitive receptors proximate to the project site. The HRA evaluated emissions from project construction based on the methodologies prescribed in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015).

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The MDAQMD recommends a carcinogenic (cancer) risk threshold of 10 in 1 million. Additionally, some toxic air contaminants (TACs) increase noncancer health risk due to long-term (chronic) exposure. The Chronic Hazard Index is the sum of the individual substance chronic hazard indexes for all TACs affecting the same target organ system. The MDAQMD recommends a Chronic Hazard Index significance threshold of 1.0 (project increment). The exhaust from diesel engines is a

complex mixture of gases, vapors, and particles, many of which are known human carcinogens. Diesel particulate matter (DPM) has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. The Office of Environmental Health Hazard Assessment (OEHHA) has determined that the health risk from DPM is only of concern for cancer and chronic non-cancer health effects, and potential acute (short-term) non-cancer health effects are not a concern. Therefore, the HRA focuses on the risk for cancer and chronic non-cancer health impacts from project construction. This HRA evaluated the risk to existing residents from diesel emissions from exhaust from on-site construction equipment and diesel haul and vendor trucks. More than 90 percent of DPM is a subset of $PM_{2.5}$.

Cancer risks were evaluated using the inhalation Cancer Potency Factor published by the OEHHA. The cancer risks were calculated using the derived (adjusted) approach in the OEHHA risk assessment manual. The cancer potency factor for DPM is 1.1 per milligram per kilogram of body weight per day. Refer to Impact 3.3-3 for more information on the methods used in the HRA.

As shown in **Table 3.3-7** of the EIR and depicted below for ease of the reader, the peak cancer risks during construction would be less than the threshold of 10 in 1 million. In addition, the chronic hazard indexes would be less than the threshold of 1.0. Therefore, project construction would not expose sensitive receptors to substantial TAC pollutant concentrations that would have significant health impacts related to increased cancer and non-cancer chronic health risks.

Table 3.3-7:
Modeled Cancer Risks and Chronic Hazard Indexes

Receptor	Land Use Type	Modeled Annual Concentrations ($\mu g/m^3$)	Cancer Risks (per million)	Chronic Hazard Index
ML-1	Residential	0.00030	0.1	0.00006
ML-2	Residential	0.00251	0.7	0.00050
ML-3	Residential	0.00095	0.3	0.00019
ML-4	Residential	0.00364	1.1	0.00073
ML-5	Residential	0.00138	0.4	0.00028
ML-6	Residential	0.00444	1.3	0.00089
ML-7	Residential	0.00032	0.1	0.00006
ML-8	Residential	0.00314	0.9	0.00063
		Thresholds	10	1.0

Source: HDR 2019

With respect to health impacts related to criteria pollutants emitted during construction, a quantitative health risk assessment was performed that confirms the analysis in the DEIR (see **Appendix L** of the Final EIR). The analysis shows that the estimated impacts from the project's criteria pollutant emissions during construction are extremely low and represent only a very small fraction of the total background health incidence. When taken in context, the very small

increase in incidences indicate that any adverse health impacts from temporary exceedances of criteria air pollutants are so negligible as to be hardly measurable.

Responsive to Comments: 6-5, 26B-28, 26B-29, 27-17, 47-3, 51-13, 55-1, 58-8, 59-6, 60-4, 61-5

MASTER RESPONSE 4 – MONITORING STATION

As stated in Section 3.3, Air Quality of the EIR, ambient air quality for the project site can be determined from ambient air quality measurements conducted at air quality monitoring stations. Existing levels of ambient air quality and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin that maintains the air quality monitoring stations which process ambient air quality measurements. The MDAQMD collects data at 13 monitoring stations distributed across the basin to measure overall air quality in the basin. The MDAQMD air quality data used in the project's air quality analysis and further discussion on the methods used in the analysis are provided in the DEIR beginning on page 3.3-5.

The closest ambient air quality monitoring station to the project site that monitors ozone and airborne particulates is the Barstow monitoring station, at 225 East Mountain View Street in Barstow, approximately 11.7 miles west of the project site. The next nearest monitoring stations are about 30 miles or more from the project site (including Lucerne Valley, Phelan, Hesperia, and Victorville).

Detailed ambient air quality data collected at the Barstow monitoring station is presented in **Table 3.3-1** of the EIR and provided below. The table summarizes the data from 2014 to 2016 and the number of days exceeding the ambient air quality standards. This data provides a sufficient three-year baseline of ozone and airborne particulates per MDAQMD guidance and CEQA best practices. Air quality is evaluated on an air basin level, and thus the Barstow station provides the most relevant data for this portion of the air basin.

Some comments received on the DEIR requested that baseline data include data from PurpleAir monitors. However, since the PurpleAir monitors are often in public locations and are not calibrated, maintained, and tested by MDAQMD, it is not possible to confirm their accuracy. Further, some comments requested placement of air monitors on the project site. As explained above, air quality analyses under CEQA are based on air basin-wide thresholds. If the fugitive dust emissions exceed the significance levels, as here, the applicant would implement available control measures to limit fugitive dust emissions during both construction and operations (specific measures are listed in Master Response 1).

Due to the inherent lack of data accuracy when data are obtained on a site-by-site basis and the cumulative nature of air quality monitoring, the MDQAMD does not require site-specific baseline monitoring. Further, mitigation measures are developed by each air district addressing air quality impacts on a specific air basin-wide basis. Based on MDAQMD guidance, implementation of mitigation measures **AIR-1** and **AIR-2** as well as dust control measures included in Chapter 84.29, Renewable Energy Generation Facilities of the County Development Code are the most stringent

available for controlling fugitive dust during project construction. These dust control measures include ceasing all clearing, grading, earth moving, and excavation activities when winds are greater than 20 miles per hour, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property. The use of opacity (the extent to which the air is obscured by particulates) is the MDQAMD's method for monitoring compliance with its conditions since it allows for immediate compliance activities and corrective actions.

Table 3.3-1:
Ambient Air Quality Monitoring Data

Pollutant	Pollutant Concentration and Standard	Maximum Concentration		
		2014	2015	2016
Ozone	Maximum 1-Hour Concentration (ppm)	0.094	0.090	0.089
	Number of Days > 0.09 ppm (State 1-Hour Standard)	0	0	0
	Maximum 8-Hour Concentration (ppm)	0.087	0.082	0.083
	Number of Days > 0.070 ppm (State 8-Hour Standard)	33	18	25
	Number of Days > 0.070 ppm (Federal 8-Hour Standard)	33	18	25
Nitrogen Dioxide	Maximum 1-Hour Concentration (ppm)	0.0693	0.0613	0.0667
	Number of Days > 0.18 ppm (State 1-Hour Standard)	0	0	0
	Number of Days > 0.10 ppm (Federal 1-Hour Standard)	0	0	0
	Annual Arithmetic Mean (ppm)	0.017	0.016	0.016
	Exceed 0.030 ppm? (State Annual Standard)	No	No	No
	Exceed 0.053 ppm? (Federal Annual Standard)	No	No	No
Carbon Monoxide	Maximum 1-Hour Concentration (ppm)	3.1	2.2	3.8
	Number of Days > 20 ppm (State 1-Hour Standard)	0	0	0
	Number of Days > 35 ppm (Federal 1-Hour Standard)	0	0	0
	Maximum 8-Hour Concentration (ppm)	2.6	0.6	1.2
	Number of Days > 9 ppm (State 8-Hour Standard)	0	0	0
	Number of Days > 9 ppm (Federal 8-Hour Standard)	0	0	0
Sulfur Dioxide	Maximum 1-Hour Concentration (ppb)	4.8	60.2	26.3
	Number of Days > 250 ppb (State 1-Hour Standard)	0	0	0
	Number of Days > 75 ppb (Federal 1-Hour Standard)	0	0	0
	Maximum 24-Hour Concentration (ppb)	NA	NA	NA
	Number of Days > 40 ppb (State 24-Hour Standard)	NA	NA	NA
Coarse Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m3)	305.8	155.2	246.9
	Number of Days > 50 µg/m3 (State 24-Hour Standard)	1	1	2

Table 3.3-1, continued

Pollutant	Pollutant Concentration and Standard	Maximum Concentration		
		2014	2015	2016
Coarse Particulate Matter (PM_{10}) (Continued)	Number of Days > 150 µg/m3 (Federal 24-Hour Standard)	NA	NA	NA
	Annual Arithmetic Mean (µg/m3)	27.7	24.8	27.0
	Exceed 20 µg/m3? (State Annual Standard)	Yes	Yes	Yes
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m3)	24.1	50.2	41.5
	Number of Days > 35 µg/m3 (Federal 24-Hour Standard)	0	1	1
	Annual Arithmetic Mean (µg/m3)	NA	6.6	7.5
	Exceed 12 µg/m3? (State Annual Standard)	NA	No	No
	Exceed 12 µg/m3? (Federal Annual Standard)	NA	No	No

Source: HDR 2019
Notes: NA = not available; $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion

Additionally, as shown in **Table 3.3-2** of the EIR and below, the project site is a federal nonattainment area for O_3 and PM_{10} and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. Since air quality attainment status is measured on a cumulative basin level, data from additional monitoring stations or additional baseline ambient air quality data would not substantially alter attainment status nor would it change the MDAQMD's established significance levels or the relationship of the project's expected fugitive dust emissions (which are calculated on a project-specific basis) to those significance levels.

Table 3.3-2:
Federal and State Ambient Air Quality Attainment Status

Pollutant	Federal	State
Ozone (O_3)	Nonattainment	Nonattainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Unclassified/Attainment	Attainment
Coarse Particulate Matter (PM_{10})	Nonattainment	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Unclassified/Attainment	Nonattainment

Source: HDR 2019

Responsive to Comments: 16-8, 21-5, 25-9, 26B-26, 26b-27, 26b-28, 26b-32, 26b-33, 26B-38, 27-17, 27-18, 29-18, 29-19, 39-1, 41-1, 41-3, 51-2, 60-3, 60-5, 60-6

MASTER RESPONSE 5 – GROUNDWATER

As stated under Impact 3.9-2 of the EIR, the project site lies within the Baja Subarea of the Mojave Basin, within the boundary of the Mojave Water Agency. The project site is not connected to a public water system and there are no public water systems that serve the project site. Rather, the current landowners have pumping rights within an adjudicated water basin and that pumping is actively managed by the Mojave Water Agency Watermaster to achieve sustainability. Existing groundwater wells are present on the project site. The wells are operational and, via agreement with the current landowners, available to serve the project's water demands during construction and operation.

Due to a Stipulated Judgment issued by the Superior Court in January 1996 (Superior Court, Judgment after Trial), the project cannot impact the amount of groundwater that is allowed to be pumped from the basin. Stated otherwise, pumping rights from the basin are already fixed independent of this project. As a result, the adjudication of the Mojave Basin Area has already fully allocated the right to produce water from the basin whether this project is approved or not. As mandated in the Judgment, the Mojave Water Agency was appointed as the Basin Watermaster and tasked with the responsibility of sustainably managing water supplies in the basin.

The Judgment allocated (and capped) water rights for each major producer (defined as a person or entity using 10 or more acre-feet per year [AFY]) based on their historical production. These rights are referred to as Base Annual Production (BAP). Specifically, BAP rights were assigned per court Judgment to each major producer; refer to Attachment A of **Appendix I-3**. The BAP represents the highest possible production for a given producer. The Mojave Water Agency, as the court-appointed Watermaster, establishes Free Production Allowances (FPA) annually to maintain proper water balances.

Construction and operations water for the proposed project would be sourced from on-site wells. Under the Stipulated Judgement, water extracted to serve the project must be within the number of acre feet already allocated. Seven landowners have water allocations of up to 8,802 AF of water for 2017-2018. The project applicant has entered into agreements with the landowners to use a portion of their existing allocations to meet construction and operational needs from the existing seven on-site wells.

The project would convert approximately 1,600 acres of agricultural uses to non-agricultural uses. The existing agricultural uses required water production of approximately 8,338 AF in 2017 (Tetra Tech 2018). In contrast, the project is estimated to require approximately 450 AFY for approximately 3.5 years for a total of 1,800 AF (during construction) and would reduce water use to 25 AFY (during project operation). This would result in a reduction of need for water production at the project site of more than 164,000 AF over 20 years. However, the remaining rights to the production would still exist and, assuming those rights are exercised, there would be little or no net reduction in water production. Therefore, the project would not increase, nor likely decrease, the amount of pumping from the subbasin. As noted, the maximum amount of

pumping is capped and controlled under the Stipulated Judgment and the amount of water to be used by the project is within the existing allocation and cannot, by law, exceed it without replacement.

Although the subbasin is not yet considered to be balanced, and FPA is expected to decline in the future, there would be sufficient water available for the project because it would use only a fraction of the water made available due to the elimination of agriculture. The large subbasin capacity as compared to the projected water budget deficit allows for the subbasin to provide sufficient water supply to the project, while the Watermaster would continue to manage the basin to bring it into balance.

Further, the rules created by the adjudication concerning transfers of water rights would not allow a net increase of outflow of the subbasin due to a transfer or change in purpose of use (agriculture to solar PV facility). If the water rights were transferred outside of the subarea or for a different use, the rights would be adjusted so that the consumptive use is not increased.

Additionally, based on the findings of the WSA prepared for the project, a sufficient water supply would be available for the project during normal, single-dry and multiple-dry water years during a 20-year projection (Tetra Tech 2018). There is a sufficient water supply to meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses. The project would replace a more water-intensive land use with a less water-intensive land use. While the WSA prepared for the project conservatively assumed that the reduction in water usage at the project site due to the conversion of agricultural land uses to a solar facility may be offset by production from other areas within the subarea, resulting in decreased local water usage, the project would require a minimal amount of water as compared to the size of the subbasin (Tetra Tech 2018).

Furthermore, due to the nature of the solar PV facility design, much of the ground surface would remain undeveloped, allowing precipitation falling during rain events to run off of the solar PV panels and infiltrate the underlying soil. Although the project would add some impervious surfaces on-site (inverter skid foundations, O&M building, etc.), the majority of the site would remain pervious. As such, the project is not anticipated to substantially interfere with groundwater recharge.

During the EIR scoping period, the County received comments requesting analysis of what would happen if the current landowners shift or transfer their production rights to a different part of the Baja Subarea, specifically, on the east side of the Calico-Newberry Fault. The concern raised is that such a shift could accelerate the localized dropping of water levels east of the Calico-Newberry Fault and that this could cause adverse environmental impacts to riparian vegetation in the Cady Camp Wildlife Area which is owned and managed by the California Department of Fish and Wildlife (CDFW), as well as possibly adversely impacting domestic wells of rural homeowners in the Newberry Springs area by increasing ground to water depths.

Within the Baja Subarea, the Lower Mojave River Valley Subbasin is divided into west and east sides by the Calico-Newberry fault. The project site is located on the west side. The Calico-

Newberry fault impedes flow between the west side and east side of the subbasin although the details of this impedance are not well understood. However, water levels on the west side are generally higher than levels on the east side and the difference between the water levels has increased over time.

The parties to the Stipulated Judgment currently have the right to produce water up to their FPA anywhere within the Subarea under the Stipulated Judgment, with or without the project. It is therefore arguable whether a shift in the location of water production is a reasonably foreseeable consequence of the project. Landowners could make this shift or transfer their rights under current conditions without the project. Further, based on communications with the current landowners, it appears unlikely that such a shift would occur for a variety of economic and practical reasons, whether or not a project is approved. If such a shift were to occur, it is not possible to know when, where, or how much water would be pumped.

CEQA does not require analysis of future scenarios that are speculative or could occur independent of the proposed project's approval. However, this EIR provides an analysis of environmental impacts resulting from potential water-pumping scenarios in response to comments received. In some of the scenarios considered, additional groundwater depletion would occur in a basin that is already in overdraft. The Riverside Superior Court-appointed Watermaster has tools to address ongoing overdraft conditions in the Baja Subarea.

Several potential scenarios for future use of the existing production exist, all of which require some degree of forecasting and speculation. Selection of the following four scenarios for evaluation was based upon communications with the current owners of those rights, the rules for transferring water rights under the Stipulated Judgment, the economics of farming in the area, perceptions of future water availability, existing infrastructure, existing patterns of land ownership and other considerations.

- **Scenario 1:** Retirement of the rights by the current owners of those rights;
- **Scenario 2:** Exercise or transfer of existing production rights outside of the Baja Subarea;
- **Scenario 3:** Exercise of existing production rights to the eastern Lower Mojave River Valley Subbasin within the Baja Subarea (i.e. east of the Calico-Newberry Fault); and
- **Scenario 4:** Continuation of existing production of water from the western Lower Mojave River Valley Subbasin to irrigate agricultural land located on the west side of Calico-Newberry Fault.

Analysis in the EIR found that Scenarios 1 and 4 would have no adverse impact on the groundwater levels in the subbasin east of the fault. Scenarios 2 and 3 evaluate the potential water-related environmental impacts due to localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to other areas. These shifts would not change existing supply or demand on a Subarea-wide basis but only on a localized basis with the Subarea. These scenarios are unlikely due to either controls on inter-

basin transfers or to the economic disincentives to shifting FPA to the east side of the Calico-Newberry Fault.

As noted, these scenarios could occur with or without the approval of the project. It is therefore questionable whether these impacts to localized groundwater levels on the east side of Calico Fault can reasonably be considered to be foreseeable indirect impacts of the project. Impacts are conservatively assumed to be significant and unavoidable because the County could not compel any actions by the Watermaster to adjust FPA or take other actions to address declining groundwater levels east of the Calico-Newberry Fault.

As described above, the project reduces water usage on-site compared to historical conditions on the project site. Although the unused water rights could potentially be transferred to private property owners on other property within the Subarea, such a transfer is not proposed by the project. Therefore, there is not a sufficient nexus for the County to require retirement of water rights not needed by the project as mitigation for project impacts. Furthermore, water rights are not controlled by the County, so water rights could be transferred to another property in the subarea regardless of implementation of the proposed project.

As described in the EIR, the Watermaster has tools to address ongoing overdraft conditions in the eastern Baja area, including requesting the Riverside Superior Court to further reduce the FPA if water levels decline in the eastern Subarea as the result of a transfer. Therefore, project implementation would not interfere with the Watermaster's ability to manage and balance the Subarea.

Comments have also been made that the applicant should be required to purchase and retire all of the current landowners' existing pumping rights. The project has no need for these water rights and purchasing them would make the project economically unviable. There is not a sufficient nexus between the project and the ability of the landowners to continue to exercise their lawful pumping rights for the County to require the project proponent to purchase (and retire) water rights that the project does not need and will not use. The lowering water table in the basin is a preexisting problem that is not caused and will not be adversely impacted by the project. The project will reduce demand for groundwater pumping at the project site.

Comments that state that the Mojave Solar project set a precedent for requiring the sequestration of water rights as mitigation is not directly comparable. For that project, the applicant proposed a water conservation plan that sequestered an amount of water rights in the Mojave Basin Area on an annual basis for the life of the project equal to the amount of water withdrawn and actually used by the project. Mojave Solar uses a different type of solar technology, concentrated solar power, which utilizes water for energy production whereas Daggett Solar does not. Here, the commenter is proposing that the applicant purchase and retire water rights that are not required by the project to address a preexisting problem that is not caused by the project.

Responsive to Comments: 2B-5, 2B-6, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-13, 6-10, 16-1, 20-1, 27-23, 29-19, 29-20, 29-21, 34-1, 34-2, 34-4, 34-5, 37-13, 45-2, 47-2, 52-36, 52-38, 54-12

MASTER RESPONSE 6 – GLINT/GLARE ANALYSIS

As stated under Impact 3.1-4, the proposed project would use dark-colored matte PV solar panels featuring an anti-reflective coating. Photovoltaic solar panels are designed to be highly absorptive of light that strikes the panel surfaces, generating electricity rather than reflecting light. The solar panels are also designed to track the sun to maximize panel exposure to the sun. PV panels have a lower index of refraction/reflectivity than common sources of glare in residential environments. The glare and reflectance levels from a given PV system are lower than the glare and reflectance levels of steel, snow, standard glass, plexiglass, and smooth water (Section 3.1, Aesthetics and Visual Resources; Glint and Glare). The glare and reflectance levels of panels are further reduced with the application of anti-reflective coatings. PV suppliers typically use stippled glass for panels as the "texturing" of the glass to allow more light energy to be channeled/transmitted through the glass while weakening the reflected light. With the application of anti-reflective coatings and use of modern glass technology, project PV panels would display overall low reflectivity.

The PV solar panels would be angled perpendicular to the general east–west direction of the sun and are designed to track the position of the sun throughout the day to maximize panel exposure to sunlight if a tracking system is used. Alternatively, the panels could be installed on a fixed-tilt system and would face to the south. The greatest potential for light reflection to reach viewer locations would occur with a tracking system when the panels would be angled toward the horizon at sunrise and sunset.

The solar power facility would be located in a broad flat valley. Potential viewers of the facility, including motorists on I-15, I-40, and Route 66, and residents, would be less than 20 degrees above the facility. Residents and motorists would not be exposed to glare due to the low-glare equipment used for the panels and due to the low viewing angle at sunrise and sunset. Residents and motorists may perceive indirect glare as an increase in color contrast in the early morning hours when the darkly colored PV panels could appear as lightly colored or white. This indirect glare would be brief (a few minutes in the morning and evening hours) and would not cause a hazard or nuisance to residents or motorists.

The Federal Aviation Administration (FAA) is responsible for setting and enforcing regulatory policies that ensure overall safety of the air traffic control system in the United States. One such activity involves providing guidance to solar energy projects located near federally obligated public use airports. Specifically, the FAA provides guidance to solar developers to ensure that glint and glare from the solar panels or other project features do not impact the safety and/or operations of the surrounding airport.

As stated in Section 3.1, Aesthetics and Visual Resources in the EIR, the FAA interim policy for Solar Energy System Projects on Federally Obligated Airports and Sandia National Laboratories

Solar Glare Hazard Analysis Tool (SGHAT) was used to evaluate the potential for glint and glare associated with the proposed project. The results of this analysis can be found in **Appendix H-3** to the DEIR. The FAA interim policy provides standards for measuring the ocular impact on pilots and/or air traffic controllers from the proposed project. The use of SGHAT is required to demonstrate compliance with the interim policy standards.

Current FAA policy dictates that glint and glare shall be assessed for aircraft within two nautical miles of the runway during the approach phase of flight. Additionally, the policy requires assessment of glint and glare on air traffic control personnel working in an air traffic control tower, if applicable. These two areas of concern, impacts to the final approach course and to the air traffic control tower, have been deemed by the FAA to present the greatest likelihood for adverse effects from glint and glare. Consequently, other than the straight-in final approach course, traffic pattern approaches such as the "downwind leg" (parallel to the runway) and "crosswind leg" have not been deemed to be at risk for glint and glare per FAA policy and are therefore not included in glint and glare analyses. Additionally, aircraft departures, given the general nose-up attitude of the aircraft, are not likely to experience glint or glare events as the pilot would not be looking downward and therefore are not included in the regulatory guidelines.

The analysis in the EIR considered the impact on aircraft approaching Runways 08/26 and 04/22. The results of the study show that there is a "low potential for after image" associated with glare emanating from Array 6 of the proposed project, and as stated in Appendix H-3 to the DEIR, this level of glare is deemed acceptable by FAA standards per the FAA interim policy. This glare may be seen by aircraft making approaches to Runway 22. No glare was identified that would have an effect on Runway 08/26 from any of the project arrays. Therefore, there would be a less than significant impact on airport operations as a result of glint and glare from the proposed project.

The FAA-certified glint and glare model (SGHAT) does not have a module for performing assessments between sundown and sunup, i.e., the potential glint and glare from the moon. While moonlight can be considered to be bright, light by the moon is not as bright or intense as light generated by the sun. It is therefore accepted that if a solar array is compliant with FAA standards during daylight, then it will be compliant at night as well.

The proposed project would also be designed to ensure consistency with San Bernardino County Code Section 84.29.040, which requires solar energy facilities to be designed to preclude daytime glare on any abutting residential land use zoning district, residential parcel, or public right-of-way. The solar PV panels would not create a substantial source of glare due to the use of anti-reflective coating on the panels and the elevation of potential receptors relative to the facility. The impact would be less than significant.

As described above, potential impacts associated with glint and glare are properly analyzed in the EIR. Refer to Attachment 4 of **Appendix H-3** for further details on the glare analysis study that was conducted for the project.

Responsive to Comments: 6-11, 8-2, 8-3, 8-4, 11-3, 12-2, 12-6, 13-21, 16-13, 16-16, 26B-15, 47-4, 54-2, 57-4, 58-5

MASTER RESPONSE 7 – VISUAL ANALYSIS

As described in Section 3.1, Aesthetics and Visual Resources of the EIR, a visual analysis for the project was conducted. The first step was to complete a desktop topographic viewshed analysis to help in the selection of key observation points (KOPs) for more specific evaluation. In compliance with Development Code Section 82.19.040, the desktop visual analysis illustrates the theoretical geographic extent of project views. The visual analysis generally shows the area that is visible from an observer's viewpoint but, unlike the actual viewshed, does not include the screening effects of intervening vegetation and/or physical structures; the analysis is a general desktop evaluation of the viewshed. The analysis indicates that the project site may be visible from the surrounding valley areas for up to approximately 5 miles to the north and south and up to approximately 10 to 12 miles to the east, southeast, and northwest, depending on elevational differences, intervening topography, and atmospheric conditions. Although some portion of the project site may be visible from a relatively large area, the degree of visibility would depend on distance and view angle. Generally, the project site would be most visible from viewpoints within one mile, while site visibility would diminish as distance increases and view angle decreases. Air quality, including dust and other visible particulates, can affect visibility in the area.

In addition to the topographic viewshed analysis, six key observation points (KOPs) were selected as representative vantage points in the landscape that offer motorists, including local residents traveling on area roadways, views of the proposed project. One additional simulation is added to this analysis (KOP 2B) to provide a view from a slightly different vantage point (see below) and in response to comments received. Factors considered in the selection of KOPs included locations with sensitive viewers (e.g., local residences, Route 66) and potential for the project site to be visible (e.g., distance and view angle). The KOPs were selected to capture representative vantages from scenic routes (I-15, I-40, and Route 66), residential areas northeast of the project site, the Calico Ghost Town, and the Newberry Mountains Wilderness Area. These KOPs were reviewed and approved by County Planning Department staff. Digital photographs were taken from the selected KOP locations to support the discussion on existing visual setting and the analysis of potential visual impacts associated with the proposed project.

Three-dimensional (3-D) visual simulations from each KOP were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Photographs were taken with the digital single-lens reflex (DSLR) Canon 5D Mark III camera during fair weather conditions on August 28, 2017. An additional photograph at KOP 2B (see below) was taken with the digital single-lens reflex (DSLR) Nikon D5600 camera equipped with a 50 mm full-frame equivalent lens during fair weather conditions on June 20, 2019. Each photo-documented location was recorded using a Trimble Geo-XT 6000 series GPS receiver, set to NAD 83, UTM Zone 10N. Post-processing was performed using a Pathfinder Office Pro utilizing correction data from the UNAVCO base station in Rialto, California. Following coordination with the County on the location of the proposed KOPs, the precise location of each KOP was selected in the field based on accessibility and safety.

The existing view photographs were then compared to the simulated views to define the degree of visual change and visual impacts of the proposed project. The visual simulations were prepared using a combination of GIS, CAD, and 3D modeling and rendering software. To create the simulations, the location data captured by the GPS device was transferred to ArcMap, then merged with CAD data of the preliminary layouts of project components and facilities in AutoCAD Civil3d. A map showing the data was exported at true scale and imported into Autodesk 3D Studio Max®. Using this scaled map as a base, a 3D model of the project area was created. 3D models of the proposed Project features, previously modeled to scale in 3D Studio Max®, were added in their appropriate locations and elevations. The views from the existing photographs were then matched in the 3D model using virtual cameras with the same focal length and field of view as the field photography. After date- and time-specific lighting was added to the 3D model, renderings from the virtual cameras were created. These renderings were then blended into the existing conditions photographs in Adobe Photoshop software. Any necessary modifications to the existing landscape were completed in Photoshop as well. This process of creating a 3D model at true scale and rendering images using the same specifications used by the camera ensures that the spatial relationships of the landscape, project features, and viewer perspective are accurate and match the existing site photographs.

The results of the visual simulation are compared with the existing conditions photograph and shown in **Exhibits 3.1-5** through **3.1-11** provides simulated views of project features. Please refer to **Exhibits 3.1-1a**, **3.1-2a**, etc. for existing views and **Exhibits 3.1-1b**, **3.1-2b**, etc. for visual simulations.

The BLM Visual Resource Management (VRM) System was used to evaluate visual change by comparing the project features with the basic features (i.e., landform, vegetation, and structures) in the existing landscape using the basic design elements of form, line, color, and texture. The BLM VRM System was used because the VRM System is an industry standard method for analysis of landscape visual change and the County has not developed or adopted its own visual resource analysis methodology. The BLM also manages landscapes with similar characteristics to the project site. Visual contrast rating forms (BLM Form 8400-4) were completed for each KOP and are provided in Appendix D of the Visual Impact Assessment (HDR 2018; refer to **Appendix B-1**). The anticipated degree of viewer sensitivity (i.e., low, moderate, or strong) is disclosed for each KOP. Consistent with the BLM's VRM System, factors considered in determining degree of contrast include distance, view angle, view exposure, relative size or scale, and spatial relationships.

Findings or determinations as to the impacts associated with project features contrasting with surrounding land uses were made in the EIR, in Section 3.1, Aesthetics and Visual Resources. As discussed in Impact 3.1-3 of the EIR, the solar panels would have a uniform color, texture, and form, which would contrast with the color and form of the desert vegetation and landscape (page 3.1-58 of the DEIR). The impacts associated with this contrast ranged from moderate to low levels of visual change, depending on the distance and any intervening features between the KOPs and the project site. It was determined that these levels of visual changes on the landscape in an area with moderately low visual quality would result in a less than significant impact on visual quality.

Daggett Solar Project

Visual Simulations

KOP 2B:
Hidden Springs Rd., S. of Hwy 40



Existing Conditions



Simulated Conditions



Photo Information
KOP 2B

Time	11:20am
Date	5/20/2019
Latitude	34.8392
Longitude	-116.8036
Viewing Direction	Northeast
Observer Height	2,089 feet
Conditions	Clear

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Section 2.2.1 of **Appendix B-1** of the EIR, and **Appendix A**, Figures A1 and A2 show typical solar array and tracker panel layouts, respectively. Typical layouts were shown because, as stated in Section 2.2.1, specific equipment for the proposed project would be determined prior to construction. Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet above grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet above grade. This height is visible in relation to surrounding land uses as shown in Exhibit 3.1-10b KOP 5B of the EIR. The moderate level of visual change on the landscape in an area with moderately low visual quality would result in a less than significant impact on visual quality. The visual simulations in the EIR represent accurate views of project features based on reasonable assumptions for visual modeling.

Exhibit 3.1-6b in Section 3.1 of the EIR and Figure C2 of **Appendix B-1** of the EIR include project features visible in the left half of the figures. As discussed in the EIR under Impact 3.1-3, from I-40 (KOP 2) the solar arrays would be visible in the foreground (on the west) and middle ground views, with the solar panels and related fencing becoming less discernible at a distance and blending into the agricultural land use pattern. Few encroachments exist that otherwise shield the project from view. The new gen-tie structures would be barely discernible in the far middle ground and would blend in with the existing lattice transmission line structures in the existing transmission corridor farther north. The landscape conversion at the solar site would be less apparent due to the setback from the highway. The project would result in a moderately low change to views from I-40.

To further confirm the conclusion that the project would result in a moderately low change to views from I-40, a supplemental visual simulation was prepared. Supplemental Visual Simulation KOP 2B shows views of the site from Hidden Springs Road, south of I-40. Similar to Figure C2 or Exhibit 3.1-6b, project features are visible in the middle ground of the simulation. Comments were received that the photo used for Figure C2 or Exhibit 3.1-6b was at a lower elevation than the project site and therefore reduced the visibility of the site. As shown in Supplemental Visual Simulation KOP 2B, the photo used for the simulation is taken from a viewpoint that is at a higher elevation, approximately 40 feet, than the project site which allows the viewer to look down toward the site. From this viewpoint, the visual prominence of the project features is similar to that shown in the EIR.

The creation of 3-D visual simulations is not required under CEQA. The visual simulations and viewshed analysis follow industry standards per the BLM VRM System (San Bernardino County does not have its own protocols for conducting visual analyses). The photos obtained for the simulations were taken with a 50mm lens and not a wide-angle lens. However, for the purpose of showing a broad panorama, some of the photos are shown in a wide view. The KOPs were selected based on objective analyses of the viewshed and existing conditions and to obtain a representative sample of the most impacted viewsheds. These KOPs were selected in consultation with County staff. In their current state, the visual analysis represents the independent judgment of the County.

Project impacts associated with new light or glare are discussed in the EIR, Section 3.1, under Impact 3.1-4. As discussed, nighttime lighting associated for the proposed project would be subject to County approval and compliance with County requirements. County lighting regulations require submittal of an approval of exterior lighting plans per General Plan Conservation Element Policy D/CO 3.1(b). Compliance with General Plan Conservation Element Policy D/CO 3.2 would ensure that impacts associated with new sources of nighttime lighting for the proposed project would be less than significant. In addition, the proposed project would also be designed to ensure consistency with San Bernardino County Code Section 84.29.040, which requires solar energy facilities to be designed to preclude daytime glare on any abutting residential land use zoning district, residential parcel, or public right-of-way. The solar PV panels would not create a substantial source of glare due to the use of anti-reflective coating on the panels and the elevation of potential receptors relative to the facility. Manual, timed, and motion sensor lights would be installed at access gates, equipment pads and substations for maintenance and security purposes. Lighting would be shielded and aimed downward to the ground. No other lighting is planned. The impact would be less than significant.

Responsive to Comments: 6-4, 10-16, 13-5, 13-13, 17-6, 21-6, 26B-10, 26B-11, 26B-12, 26B-13, 26B-14, 26B-20, 26B-21, 43-10, 49-3, 49-4, 52-5, 52-7, 52-8, 52-10, 52-18, 52-19, 52-20, 52-21, 52-22, 52-23, 52-24, 52-26, 58-5, 60-12, 60-14, 60-16, 60-18, 61-3, 61-6, 62-1, 62-2, 62-3, 62-4, 62-5, 62-6, 62-7, 62-8

MASTER RESPONSE 8 – WINDBLOWN MATERIALS

As discussed in Section 3.3, Air Quality, Wind-Transported Materials, of the EIR, the existing air quality conditions at the project site and in the general project area are impacted by wind-transported materials (page 3.3-26 of the DEIR). This section of the EIR describes the conditions on-site that may contribute to the transport of wind-transported materials, such as wind speeds and soil composition. **Appendix D-2**, Dust Control Technical Memo, of the EIR provides more detailed information about the soils at the project site that are susceptible to aeolian (or windblown) activity (Exhibit 3.2-1, Soils Map). Refer to Master Response 1 for additional information on how the project would be required to reduce fugitive dust, such as the implementation of mitigation measure **AIR-3** that requires the applicant to develop a Dust Control Plan to address impacts from project operation.

Sand Transport in the Area

According to the general sand transport pathway descriptions and map of sand areas included in the Desert Renewable Energy Conservation Plan, the eastern parcels of the project, or approximately 30 percent of the project site, is part of a sand transport pathway[1] (see **Appendix D-2** of the EIR).

[1] Desert Renewable Energy Conservation Plan, Figure H-3 (Aeolian and Sand Transport Areas); https://drecp.databasin.org/maps/42ad2936223d480fbf658557b9f16d03

Due to the local soil composition that contains a high percentage of sand- and silt-sized particles and the common occurrence of windy conditions, airborne particles of a very fine size (including both sand- and silt-sized particles) are a frequent occurrence currently in the general area. Large sections of the site are under agricultural production; when the fields are not actively in cultivation, they contribute to windblown fugitive dust that causes poor air quality in the area. The project site is on the western edge of deeper and more extensive sandy soils and dunes that extend along the Mojave River and into the lower Mojave Valley.[2,3,4] Sand transport in this region generally is to the east along the Mojave River toward Soda Lake, Devil's Playground, and Kelso Dunes.[5]

Sandy habitat in the area resulting from the movement of sand through these pathways supports the Mojave fringe-toed lizard, a California Species of Special Concern. As described in the 2018 Spring/Summer Biological Resources Survey Report provided as **Appendix E-2** of the EIR, 80 acres in the southeastern portion of the project site have loose, sandy soils and could be suitable habitat for Mojave fringe-toed lizards. However, habitat within the project site is marginally suitable for Mojave fringe-toed lizards and is unlikely to be an important part of any dispersal corridor between areas with better quality habitat because the sites (1) do not have extensive or well-developed sand sheets (relative to areas farther east in the Mojave Valley), (2) are partially disturbed, and (3) are adjacent to cultivated fields. No Mojave fringe-toed lizards were observed in the project site during the 2018 surveys. Sand that is currently transported across the project site would be slowed down in comparision to existing conditions (see Appendix D-2 at p. 9) and would continue to move slowly through the site as it does under existing conditions. Therefore, the project would not significantly impact suitable habitat supporting this species to the east of the project site.

Effects of Sand Transport

Under existing conditions, windblown sand and particles cause air quality degradation and can result in damage to surfaces from blowing sand as well as covering and even burial of agricultural and other facilities and equipment. The wind erosion moves dust from sand areas to nearby receptors at residences where the airborne particulates can be inhaled by residents. Inhalation of particles (particularly the silt-size fraction which includes the PM_{10} and $PM_{2.5}$ particle sizes) pose a human health hazard.

[2] [USDA] United States Department of Agriculture. 1937. Soil Survey of the Barstow Area, California. USDA. Series 1933, No. 8.

[3] USDA. 1986. Soil Survey of San Bernardino County California. Mojave River Area. USDA Soil Conservation Service.

[4] USDA. 2017. Soil Survey Staff, Natural Resources Conservation Service. Web Soil Survey. Available online at https://websoilsurvey.sc.egov.usda.gov/. Accessed August 21, 2017.

[5] Muhs, D. R., R. L. Reynolds, J. Been, and G. Skipp. 2003. Eolian Sand Transport Pathways in the Southwestern United States: Importance of the Colorado River and Local Sources. *Quaternary International* 104:3–18.

Dust and Sand Transport Related to the Project

To further characterize the soil, air, and other environmental conditions present at the project site and in the general area, the project applicant conducted site-specific studies on local topography, soils and vegetation conditions. The EIR discusses the results of these studies in Section 3.6, Geology and Soils and Section 3.4, Biological Resources. The project applicant consulted with the County about the potential for fugitive dust caused by developing similar solar facilities in locations with similar environmental conditions. A geomorphologist with expertise in sand transport and soils evaluated the conditions and the proposed construction methods and developed the Dust Control Technical Memorandum (see **Appendix D-2**). As described in mitigation measure **AIR-3**, the applicant is required toformulate a Dust Control Plan to minimize fugitive dust during project construction based on consultations with the County and the geomorphologist as well as their own experience with developing projects in locations with similar environmental conditions.

The Dust Control Plan will have the following features:

- To minimize the area of uncovered soil, vegetation will not be removed from the project site until the onset of a given construction activity.
- Within the solar field, vegetation will typically be mowed and/or cut short, with plant materials mulched or composted, and retained on-site to assist in erosion control and limit waste disposal. In some areas to be graded, native vegetation may be harvested for replanting to augment soil stabilization.
- Plant root systems will be left in place to provide soil stability except where grading and trenching are required for construction of drainage controls, underground electric lines, inverter and transformer pads, substation and operations and maintenance (O&M) building pads, road and access ways, and other facilities.
- The project site is nearly level and requires minimal grading to allow for installation of the solar panels. Areas comprising the solar field will be prepared by either the mow-and-roll technique for agricultural land or plate-and-roll technique for native vegetation. The project site will be mowed/plated and grubbed, to remove any large stumps, then rolled by rubber-tired farming tractors towing compaction equipment, such as a drum roller, to flatten the surface and compact the soil after mowing/plating is complete.
- A water truck will follow closely alongside the tractor to moisten the soil to minimize dust. The tractor may make several passes to fully compact the vegetation into the top soil, preserving the underground root structure, top soil nutrients, and the seed base.
- Limited use of scrapers for micrograding will be employed only where needed to produce a more level surface than can be produced by the plate-and-roll technique (at locations for inverter pads, stormwater basins, etc.). Also, limited grading will be required to construct stormwater detention basins, and to elevate equipment pads, substations, and the O&M building above flood levels where required per the site hydrology study.

- The project's cut and fill would be balanced on-site and no importing or exporting of materials would be necessary.

As the amount of PV solar installations has grown over the last ten years, so has the industry's expertise in determining best management practices (BMPs) for solar construction in different regions. Older generations of solar equipment required a very level and nearly flat surface for operation since the equipment being used was not designed with the tolerances of modern solar equipment. Therefore, to prepare a site in the past, construction methods often included stripping the site and grading it to nearly flat condition. This method can cause issues with dust control in desert climates when not properly mitigated.

Today, the tolerances of tracking equipment for uneven ground surfaces are much higher and thus, less intensive site preparation methods can be implemented for a site that is already relatively flat, such as the plate-and-roll method, which compacts the surface without removing topsoil or significantly altering contours. Using these methods allows native vegetation and root systems to remain in the compacted soil which in turn acts as mulch to tighten the soil. Watering during construction, seeding with low-growing vegetation, and in some cases the application of soil binders, are also used to stabilize the soil surface to mitigate dust concerns. Where localized grading is required, mainly for stormwater retention and infiltration swales, construction activities are phased to ensure that these areas are disturbed for as short a time as possible. A thorough geotechnical analysis has been conducted for the project which identifies where construction techniques or foundation design should be altered for the specific characteristic of that particular soil or area. The project will also have a site-specific robust set of appropriate permit Conditions of Approval, including a Dust Control Plan approved by the County, which will set the standards for compliance and enforcement of these conditions through construction and operations of the project. Many of these standards are determined in the MDAQMD guidelines which are included in this EIR.

Sand Transport Mitigation Measures

The Dust Control Technical Memorandum provided as **Appendix D-2** includes several control measures that shall be implemented to limit project-created dust sources. These enforceable measures are included in the EIR in mitigation measures **AIR-1** and **AIR-3**. In addition to these mitigation measures, the project will comply with the County Development Code dust control measures included in Chapter 84.29, Renewable Energy Generation Facilities. These dust control measures include ceasing all clearing, grading, earth moving, and excavation activities when winds are greater than 20 miles per hour, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property.

Mitigation measure **AIR-1** requires the project to develop an Air Quality Construction Management Plan with fugitive dust control measures that satisfy the requirements of the MDAQMD's Rules 403 and 403.2, San Bernardino County Development Code Sections 83.01.040 and 84.29.035, and State Implementation Plans for PM_{10} and $PM_{2.5}$. Mitigation measure **AIR-1** addresses impacts during project construction and decommissioning and requires measures such

as the installation of wind fencing, surface treatment on disturbed and unstable areas, roads and parking areas, and vehicle speed limits.

Mitigation measure **AIR-3** requires the applicant to develop a Dust Control Plan (DCP) to address impacts from project operation. The DCP is commonly completed as part of the final design document preparation because specific applications of individual management practices are directly tied to the placement of facility structures and equipment. Therefore, the DCP is not typically available for the early, permitting phases of the project, except in a conceptual format by which the objectives and general management practices are introduced and a commitment to their implementation is established. Here, the County will not permit the project to go into commercial operation without the submission and approval of an operational DCP.

Similar to mitigation measure **AIR-1**, mitigation measure **AIR-3** includes measures such as managing and limiting disturbance of ground surfaces from vehicle traffic, excavation, grading, vegetation removal, or other activities to lower the potential for soil detachment; the installation of wind fencing (see **Exhibit 3.3-1, Wind Fence Locations**); surface cover for stockpiled top soil or stored bulk materials; surface treatments for areas where soil may become unstable if natural vegetation would be removed, including use of water trucks and surface compaction; vehicle speed limits which would reduce air quality impacts during project operations; and street sweeping of sealed roads to limit track out.

Post-Construction Dust and Sand Transport

The long-term success of restoring appropriate and viable vegetation to project areas post-construction will depend on a number of factors. Browne (2018)[6] identifies three primary reasons why traditional best management practices (BMPs) are often not effective in the high desert based on his experience reviewing wind erosion results at over 20 solar energy facilities in the Mojave Desert. First, converted farmlands are often depleted of nutrients needed for new plants to succeed. Second, concerns with wind erosion require special focus. Third, scraping native desert soils adversely effects the soil rhizosphere which makes reestablishing native vegetation significantly more difficult. Here, the soils have not been stripped of nutrients because crops have been routinely rotated and fields have been allowed to remain fallow. Second, there is a sufficient water supply to apply water during construction to minimize dust. Finally, the site will not be scraped (except in limited areas). These measures and the others referred to above will be formalized in a DCP during construction activities (see the explanation of surface preparation procedures above under "Dust and Sand Transport Related to the Project"). They will also be further addressed during post-construction planning (see the discussion of mitigation measures **AIR-3** and **BIO-7**).

Initial recommendations were provided for vegetation and revegetation management as Attachment 3 to **Appendix D-2**, which included a proposed seed mixture and application rate.

[6] Browne, Tom (2018). Wind Erosion in the High Desert: The Challenge of Stabilizing Soil and the Success of various Alternatives. *Environmental Connection* (Oct/Nov), IECA.ORG.

Comments received during the EIR review process[7] will be used to further inform all revegetation plans, particularly regarding the seed mixture, application rates, and initial maintenance activities. The following language will be added to mitigation measure **AIR-3**:

> **Post-Construction Site Stabilization**. After construction is complete, disturbed areas will be stabilized at a minimum in accordance with the Stormwater Pollution Prevention Plan (SWPPP), the measures set forth in **AIR-3** and Attachment 3 (Revegetation Management Details) to the Dust Control Technical Memorandum (**Appendix D-2** to the Draft EIR). If the revegetated ground cover for newly planted materials is less than 50% of baseline, the project applicant shall continue to implement measures to revegetate until 50% of the revegetated ground cover has been achieved or stabilized via other approved method.

Although the EIR includes mitigation measures to minimize dust emissions that could result from project development, windblown materials that move across the site under existing conditions will continue such that the site would continue to support marginally suitable habitat for Mojave fringe-toed lizards. However, since the agricultural uses that currently contribute to windblown dust during fallow periods will be replaced by an actively managed and stabilized site, contributions to fugitive dust from the project site should be reduced from existing conditions. As discussed in the Dust Control Technical Memorandum (**Appendix D-2** of the EIR), "the solar equipment on-site will slow the wind and windblown sand moving across the site. The piles supporting the solar panels will particularly contribute to blocking some of the windblown dust as will other facilities including the inverters and substations."

In the long term, mitigation measure **BIO-7** requires the project applicant to prepare a revegetation plan prior to commencement of the decommissioning phase as part of the Decommissioning Plan. The Decommissioning Plan shall specify success criteria for revegetation with native plants, including, but not limited to, site preparation methods, installation specifications, maintenance requirements, and monitoring/report measures to ensure certain botanical thresholds are met such as adequate cover, density, and species richness. Standards of success include if the revegetated ground cover for newly planted materials is less than 50% of baseline, the project applicant shall continue to implement measures to revegetate until 50% success rate for revegetated ground cover has been achieved or other such stabilization method as approved by the County.

The proposed revegetation seed mixture and application rates to be incorporated into the DCP will be finalized prior to implementation and will be based on input from the County and local restoration experts. The objectives of the establishment of vegetation will be both for rapid development of a vegetative ground cover (especially with annual species) and long-term establishment of desert species adapted to the local environment with good prospects for long-term survival.

[7] Email from Ken Lair to Chuck Bell (cc. Pat Flanagan), May 19, 2019, with comments on Attachment 3: Vegetation – Revegetation Management Details.

The project's construction methods as well as the planned post-construction revegetation are intended to minimize windblown dust emissions that could occur during project construction and operation. Implementation of these measures will reduce impacts related to wind-transported materials to less than significant**.** Additional language has been added to mitigation measure **AIR-3** to reflect the post-construction revegetation requirements. The EIR requires that these measures be implemented by the project applicant and that the County monitor their effectiveness.

Responsive to Comments: 6-8, 10-12, 13-11, 16-6, 16-7, 19-1, 19-3, 19-4, 19-5, 20-7, 21-4, 21-11, 25-7, 26B-22, 26B-24, 26B-26, 26B-34, 27-7, 27-16, 37-6, 37-7, 37-12, 41-2, 48-2, 49-1, 51-3, 51-4, 51-6, 51-7, 51-8, 51-9, 51-10, 51-15, 54-4, 54-10, 57-3, 59-3, 59-4, 59-5, 59-6, 60-3, 61-2, 61-9

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

April 30, 2019

Tom Nievez
San Bernardino County
385 N. Arrowhead Avenue
San Bemardino, CA 92415

Subject: Daggett Solar Power Facility
SCH#: 2018041007

Dear Tom Nievez:

1-1 The State Clearinghouse submitted the above named EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on 4/29/2019, and the comments from the responding agency (ies) is (are) available on the CEQA database for your retrieval and use. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

1-2 Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

1-3 **Check the CEQA database for submitted comments for use in preparing your final environmental document: https://ceqanet.opr.ca.gov/2018041007/2 .** Should you need more information or clarification of the comments, **we recommend that you contact the commenting agency directly.**

1-4 This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

cc: Resources Agency

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LAND USE SERVICES
ADMINISTRATION

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL 1-916-445-0613 state.clearinghouse@opr.ca.gov www.opr.ca.gov

1 STATE CLEARINGHOUSE AND PLANNING UNIT

1-1

Comment Summary:

This comment states the State Clearinghouse submitted the EIR to the selected state agencies for review and that the review period closed on April 29, 2019.

Response:

Comment noted.

1-2

Comment Summary:

This comment cites Section 21104(c) of the California Public Resources Code.

Response:

Comment noted.

1-3

Comment Summary:

This comment states to check the CEQA database when preparing to submit the final EIR and provides a link to the CEQA database.

Response:

Comment noted.

1-4

Comment Summary:

This comment states that the project has complied with the State Clearinghouse review requirements for draft environmental documents.

Response:

The County has complied with State Clearinghouse requirements.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Boulevard, Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

April 29, 2019

Mr. Tom Nievez
San Bernardino County
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

Dear Mr. Tom Nievez:

Daggett Solar Power Facility (PROJECT)
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SCH# 2018041007

2A-1

The California Department of Fish and Wildlife (CDFW) received the Notice of Availability of a Draft Environmental Impact Report (DEIR) from San Bernardino County (Lead Agency) for the Daggett Solar Power Facility (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code (FGC).

CDFW ROLE

2A-2

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (FGC, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Conserving California's Wildlife Since 1870

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 2 of 12

2A-2

need to exercise regulatory authority as provided by the FGC. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (FGC, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (FGC, § 2050 et seq.), the project proponent may seek related take authorization as provided by the FGC.

2A-3

PROJECT DESCRIPTION SUMMARY

Proponent: Daggett Solar Power 1 LLC

Location: The project is bounded by the town of Daggett approximately 0.5 miles to the west; the Mojave River, Yermo, and Interstate 15 to the north; Barstow-Daggett Airport, Route 66, and Interstate 40 to the south; and Newberry Springs and Mojave Valley to the east in San Bernardino County.

Project Description
Daggett Solar Power 1 LLC, a subsidiary of Clearway Energy Group LLC, proposes constructing, operating, maintaining, and decommissioning of a utility-scale, solar photovoltaic (PV) electricity generation and energy storage facility with associated on-site substations, inverters, fencing, roads and supervisory control and data acquisition system that would produce up to 650 megawatts (MW) of power and include up to 450 MW of battery storage capacity on approximately 3,500 acres of land. The proposed project would utilize existing electrical transmission infrastructure adjacent to the existing Coolwater Generating Station, a recently retired natural gas-fired power plant, to deliver renewable energy to the electric grid.

Facilities and Design
The proposed project would consist of solar PV panels mounted on a single-axis tracking system that follows the sun throughout the day. The tracking system would be supported by steel piles, with the panels arranged into long narrow rows, grouped into regions, referred to as solar arrays or blocks. The proposed design also includes inverters and transformers mounted on small concrete pads or steel foundations, distributed across the site. Inverter equipment pads may be accompanied with distributed Battery Energy Storage System (BESS) equipment. Electricity produced by the solar arrays would be collected and routed to an on-site substation where voltage would be increased to the interconnection voltage.

The Project is anticipated to be constructed in three phases. The phases would share certain facilities, such as the on-site project substations and generation tie (gen-tie) line. Each phase would have its own on-site substation, which may also include a BESS. From the on-site substations, each phase would include a segment of the overhead gen-tie line, which would connect the Project to the existing Southern California Edison (SCE)-owned 115-kilovolt (kV) and 230-kV Coolwater substations, which are adjacent to

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 3 of 12

the retired Coolwater Generating Station. The Project would also include security fencing for all phases, a Supervisory Control and Data Acquisition system (SCADA), telecommunications equipment and an operations and maintenance (O&M) building to be constructed with the first phase.

Solar Array
Solar panels would be mounted on a tracking system that would be supported, when practical, by driven piers (piles) directly embedded into the ground. Panels would be organized in rows in a uniform grid pattern, with each row separated by approximately 10-20 feet (from post to post). A fixed-tilt tracking system, which does not track the sun, may also be used if deemed suitable. Panels are proposed to be a maximum of 20 feet in height

Inverters and Switchgear
Individual PV panels would be electrically connected in series to create a "string" to carry direct current (DC) electricity. Strings of DC electricity would be routed to inverters, which would take the DC output and convert it to alternating current (AC) electricity.

2A-3 *Cont'd*

Project Substations
One new substation would be constructed as a part of each of the three project phases for a total of three project substations. The substations (which contain high-voltage equipment) would be unenclosed, occupy an area of approximately 300 feet by 300 feet each, and be protected with security fences.

Battery Storage
The project is anticipated to include up to 450 MW of battery storage to be constructed in three phases corresponding to the phased construction of the solar arrays. The battery storage system is expected to be either located adjacent to each of the substations or distributed throughout the solar array at the inverter equipment pads or tracker rows. Up to 16 acres may be utilized for the battery energy storage system throughout the Project site at full buildout.

Gen-Tie Line
The project is expected to be constructed in three phases. Each phase would include a new substation and segment of aboveground gen-tie transmission line. From each substation, a segment of gen-tie line would be constructed to connect the solar facility's output to the electrical grid at the existing SCE-owned 115-kV and 230-kV substations adjacent to the Coolwater Generating Station.

Access Roads
On-site access routes, with a minimum width of 20 feet, may be constructed along the project's fence line. All interior access roads would also be a minimum of 20 feet wide. Maximum width of all on-site roads would be 26 feet. All roads within the site would

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 4 of 12

consist of compacted native soil per San Bernardino County Fire Department requirements. All roads would be stabilized with soil stabilization material.

Perimeter Fencing
Fencing is proposed along the perimeter of the Project site or set back a minimum of 15 feet from the existing/proposed right-of-way, as required by the County Development Code. Fencing will be at least 7 feet tall, in compliance with National Electrical Code (NEC). Chain-link fencing is likely to be used, potentially topped with 1 foot of barbed wire. In consultation with the County, slats or mesh may be added to the chain-link fence, as appropriate and in areas where needed, to manage windblown sand. Access gates would be installed at each site entry point. Substation sites and/or battery storage sites may be separately fenced.

Operations and Maintenance
An O&M building would be constructed on approximately 1.5 acres within the project footprint during the first phase of the project. The building would serve to store spare parts and vehicles and to accommodate full- and part-time staff associated with the project. Water would come from on-site wells.

2A-3

Cont'd

Water would be required for panel washing activities and general maintenance. The frequency of panel washing would be determined based on soiling of the PV panels and expected benefit from cleaning. Should cleaning be necessary, water would be sprayed on the PV panels to remove dust. An estimated 25 acre-feet per year of water would be necessary for panel washing (for all phases of the project or full 650 MW buildout). This water would be obtained from on-site wells.

Decommissioning
If operations at the site were permanently terminated, the facility would be decommissioned. Most components of the proposed system are recyclable or can be resold for scrap value. Panels consisting primarily of silicon, glass, and an aluminum frame. Tracking systems typically consist of steel and concrete, in addition to motors and control systems. All these materials can be recycled.

Numerous recyclers, for the various materials to be used on the Project site, operate in San Bernardino and Riverside counties. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil would be managed as waste and would require evaluation. Oil and lubricants removed from equipment would be managed as used oil, which is a hazardous waste in California. Decommissioning would comply with federal, state and local standards and all regulations that exist when the project is decommissioned, including the requirements of San Bernardino County Development Code Section 84.29.060.

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 5 of 12

STATE THREATENED, ENDANGERED, SENSITIVE, SPECIES OF SPECIAL CONCERN, AND SPECIAL STATUS SPECIES

CDFW has discretionary authority over activities that could result in the "take" of any species listed as candidate, threatened, or endangered, pursuant to the California Endangered Species Act (CESA; FGC, § 2050 *et seq.*). CDFW considers adverse impacts to CESA-listed species, for the purposes of CEQA, to be significant without mitigation. Take of any CESA-listed species is prohibited except as authorized by state law (FGC, §§ 2080 & 2085). Consequently, if a Project, including Project construction or any Project-related activity during the life of the Project, results in take of CESA-listed species, CDFW recommends that the Project proponent seek appropriate authorization prior to Project implementation. This may include an Incidental Take Permit (ITP) or a consistency determination in certain circumstances (FGC, §§ 2080.1 & 2081). 2A-4

Please note that CDFW must comply with CEQA prior to issuance of an ITP for a Project. As such, CDFW may consider the lead agency's CEQA documentation for the Project. To minimize additional requirements by CDFW and/or under CEQA, the CEQA avoidance, minimization, mitigation, monitoring and reporting measures should be included in the CEQA document for issuance of an ITP.

PROJECT SPECIFIC COMMENTS AND RECOMMENDATIONS

Following review of the DEIR CDFW offers the comments and recommendations below to assist the Lead Agency in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. 2A-5

REPTILES:

Agassiz's Desert Tortoise (*Gopherus agassizii*)

The desert tortoise is listed as a threatened species under the federal Endangered Species Act and CESA (Cal. Code Regs., tit. 14, § 670.5, subd. (b)(4)(A)). The DEIR states there is a total of 1,080.9 acres of suitable tortoise habitat within the Project site.

The DEIR states that two condition Class 4 burrows are present within the Project site. The condition class of a burrow does not necessarily exclude use or occupation by a desert tortoise. When estivation in a burrow, desert tortoises may backfill the burrow giving the appearance of a false terminus or back wall. Spider webs, litter, and other debris may accumulate in burrow openings overnight, and openings may collapse during winter rains. Do not assume that a burrow is inactive or not occupied if it looks unused or collapsed. Desert tortoises may use canid or mustelid excavations, and may be found in burrows of other animals, particularly kit foxes. Burrowing owls may use desert tortoise burrows, and both animals may use the burrow at the same time. Juvenile desert tortoises create their own burrows, which may resemble rodent burrows, 2A-6

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 6 of 12

2A-6 *Cont'd*

or use rodent burrows. Sign of tortoise in the form of burrows does exist within the Project site. Since burrows are present within the Project site presence of desert tortoise has been established within the Project site. Therefore, CDFW recommends the Lead Agency require the Project proponent obtain an ITP for the life of the project.

2A-7

Mitigation Measure BIO- 1 states that the Project proponent may be required to install exclusionary/perimeter fencing. Exclusionary fencing is an appropriate minimization measure, however, if a desert tortoise is found within the fenced area it may not be moved or handled unless the Project proponent obtains an ITP from CDFW. Take of any CESA-listed species is prohibited except as authorized by state law (FGC, §§ 2080 & 2085). Consequently, if a project, including project construction or any project-related activity during the life of the project, results in take of CESA-listed species, CDFW recommends the Lead Agency require that the Project proponent seek appropriate authorization for the life of the Project prior to project implementation. CDFW also recommends the Lead Agency require the Project proponent include desert tortoise exclusionary fencing as part of the project description.

2A-8

Mitigation Measure BIO-1 also states that a qualified biologist can move tortoises out of harm's way and that preconstruction clearance surveys for desert tortoise will be conducted. The term clearance survey and moving a tortoise out of harm's way implies that if a desert tortoise is found on the Project site, it will be moved or relocated out of the Project impacted area. Handling a desert tortoise without proper permits from CDFW is considered "take". Take is defined in FGC Section 86 as "hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture or kill." Take of any CESA-listed species is prohibited except as authorized by state law (FGC, §§ 2080 & 2085). Under the FGC 5000 and 2080 it states that "It is unlawful to sell, purchase, harm, take, possess, or transport any tortoise (*Gopherus*) or parts thereof, or to shoot any projectile at a tortoise (*Gopherus*)." This section does not apply to the taking of any tortoise when authorized by the CDFW. Since desert tortoise may not be moved or handled without proper permits, CDFW recommends the Lead Agency require the Project proponent to obtain an ITP for the life of the Project.

2A-9

Mojave fringe-toed lizard (*Uma scoparia*)

The Mojave fringe-toed lizard is a State species of special concern that inhabits loose, sandy soils in sand dunes, lakebeds, and washes. Source sand and sand corridors are necessary for the long-term survivorship of an Aeolian sand specialist like the Mojave fringe-toed lizard. The DEIR states there is 80 acres of suitable Mojave fringe-toed lizard habitat within the Project site. The DIER is not clear if the ditches, playas, and washes were surveyed. CDFW recommends the Lead agency require the Project proponent to survey all suitable Mojave fringe-toed lizard habitat. This includes sand dunes, playas, ditches, and washes throughout the Project site. Survey results and impact analysis should be included in the DEIR.

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 7 of 12

BIRDS

Nesting Birds

Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R. Section 10.13), as amended (16 U.S.C. 703 et seq.). In addition, sections 3503, 3503.5, 3511, and 3513 of the FGC stipulate the following: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by FGC or any regulation made pursuant thereto; Section 3503.5 states that it is unlawful to take, possess, or destroy any birds of prey in the orders Falconiformes (such as falcons, hawks, and eagles) and Strigiformes (owls) or the nests or eggs of such bird except as otherwise provided by FGC or any regulation adopted pursuant thereto; Section 3511 states a fully protected bird may not be taken or possessed at any time; and Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA or any part of such bird, except as provided by the rules and regulations adopted by the Secretary of the Interior under the MBTA.

2A-10

Breeding bird season is usually February 15 through August 31, but note that some species of raptors (e.g., owls) may commence nesting activities in January, and passerines may nest later than August 31. CDFW recommends that the Project proponent complete nesting bird surveys and consult with a qualified ornithologist for advice in developing specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur and that the Project complies with all applicable laws related to nesting birds and birds of prey, including burrowing owl. It is the Lead Agency's responsibility to comply with all applicable laws related to nesting birds and birds of prey. CDFW recommends that the Project proponent prepare a Bird and Bat Conservation Strategy and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities. CDFW also recommends mitigating lake effect impacts to nesting birds by spacing the rows of solar panels more than 20 feet apart.

2A-11

2A-12

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird is listed as a State threatened species. The DEIR does state that tricolored blackbirds were incidentally observed in May 2018 during Mojave fringe-toed lizard and burrowing owl surveys foraging in agricultural fields within the Project site. The DEIR does not provide the number of acres of suitable foraging habitat within the Project site. CDFW considers conversion of foraging areas to renewable energy power plant facility sites to be habitat loss. CDFW recommends the Lead Agency include acres of suitable foraging and potential nesting habitat for tricolored blackbird as part of the DEIR analysis. CDFW also recommends that the Lead Agency require the Project proponent to obtain an ITP for the life of the Project.

2A-13

Swainson's hawk (*Buteo swainsoni*)

2A-14

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 8 of 12

2A-14 *Cont'd*

Swainson's hawk is listed as State threatened. During surveys in April 2018 four Swainson's hawks were observed within the Project site. The DEIR states that the Project site does support potential foraging habitat throughout and has several large trees in windrows that could be potential nesting habitat for Swainson's hawk. The DEIR however, does not provide the number of acres of suitable foraging or potential nesting habitat for Swainson's hawk that is present within the Project site. CDFW recommends the Lead Agency include acres of suitable foraging and potential nesting habitat for Swainson's hawk as part of the DEIR analysis.

2A-15

The DEIR did not clearly state that surveys for Swainson's hawk have been done for the Project site. CDFW recommends focused surveys be conducted by using the California Energy Commission and Department of Fish and Game June 2, 2010 Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. Potentially significant impacts may result from activities that cause nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success, or direct mortality. Due to the Swainson's hawk known preference for areas of low vegetation that support abundant prey, such as grasslands or alfalfa fields, CDFW considers conversion of foraging areas to renewable energy power plant facility sites to be habitat loss. Because surveys were not conducted to protocol and there is suitable nesting habitat within the Project site, CDFW recommends the Lead Agency require the Project proponent to conduct focused surveys and obtain an ITP for the life of the Project.

2A-16

Golden Eagle (*Aquila chrysaetos*)

The golden eagle is a Fully Protected Species. The DEIR states that no nesting habitat was identified within the Project site, but during focused raptor nest surveys in April and June 2018 two golden eagles were observed foraging over an agricultural field within the Project site. CDFW recommends focused surveys be conducted using the 2010 United States Fish and Wildlife Service Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations. CDFW also recommends that the Project proponent prepare a Bird and Bat Conservation Strategy and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.

2A-17

Burrowing Owl (*Athene cunicularia*)

The burrowing owl is a Species of Special concern. The DEIR states that burrowing owls have been observed within the Project site but that the observed owls are presumed to be migratory. The DEIR also states there is 1,627.2 acres of suitable burrowing owl habitat within the Project site.

Based on Appendix E1 and E2 of the DEIR surveys were performed for burrowing owl. However, CDFW recommends focused surveys for burrowing owl be conducted in

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 9 of 12

2A-17 *Cont'd* accordance with the CDFW Staff Report on Burrowing Owl Mitigation (Staff Report) (CDFW 2012) and prepare a Burrowing Owl Mitigation and Monitoring Plan and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.

2A-18 Mitigation Measure BIO-2 states that fencing or flagging shall be installed at a 250-foot radius from occupied burrows to create a non-disturbance buffer area. The Staff Report determines buffer distance based on the level of disturbance and time of year project actives take place. CDFW considers solar development a high level of disturbance. Therefore, the buffer distance for areas with a high level of disturbance is 500 meters. CDFW recommends focused surveys for burrowing owl be conducted in accordance with the Staff Report and prepare a Burrowing Owl Mitigation and Monitoring Plan and submitted it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.

MAMMALS

Desert Kit Fox (*Vulpes macrotis arsipus*)

2A-19 Desert Kit Fox is addressed in Title 14 of the California Code of Regulations: §460. "Fisher, marten, river otter, desert kit fox and red fox may not be taken at any time." And, within the FGC: §4000. "Fur-bearing mammals enumerated. The following are fur-bearing mammals: pine marten, fisher, mink, river otter, gray fox, red fox, kit fox, raccoon, beaver, badger, and muskrat." Trapping or handling of desert kit foxes is not allowed due to the legal reasons stated above. The DEIR states that one desert kit fox was photographed with a wildlife camera within the Project site.

2A-20 Mitigation Measure BIO-3 outlines mitigation the Project proponent will implement to reduce the impacts of the Project on desert kit fox to less than significant. CDFW recommends that the project proponent conduct surveys to determine desert kit fox presence and numbers within the Project well in advance of the start of ground disturbing activities. CDFW also recommends the Lead Agency require the Project proponent prepare a Desert Kit Fox Monitoring and Mitigation Plan and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.

SPECIAL HABITATS

Playas

2A-21 The Jurisdictional Delineation Report in Appendix E4 of the DEIR states that desert flats habitat (referred to in this letter as playa habitat) is present within the Project site, but the DEIR does not include acres of playa habitat present within the Project site, nor does the analysis in the DEIR include impacts to playa habitat and the species such as

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 10 of 12

fairy shrimp that are known to inhabit playas. CDFW recommends the Lead Agency require the Project proponent to conduct a biological survey of playas during the appropriate time of year and include an impact analysis to playas and the species that inhabit them in the DEIR. If State threatened, endangered, sensitive, species-of-concern, or special status species are found during surveys, then impacts to these species and habitat should be considered significant and mitigation should be required and identified in the DEIR, developed in consultation with CDFW.

2A-21 *Cont'd*

LAKE AND STREAMBED ALTERATION AGREEMENT

For any activity that will divert or obstruct the natural flow, or alter the bed, bank, or channel (which may include associated riparian resources) of a river or stream or use material from a streambed, the project proponent (or "entity") must provide written notification to CDFW pursuant to Section 1602 of the FGC.

2A-22

The DEIR states that 0.08 acres of State jurisdictional water exists within the Project site.
Early consultation with CDFW is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to http://www.dfg.ca.gov/habcon/1600/forms.html. Please note that CDFW must comply with CEQA prior to issuance of a Lake or Streambed Alteration Agreement for a Project. As such, CDFW may consider the lead agency's CEQA documentation for the Project.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

2A-23

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be

2A-24

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 11 of 12

2A-24 operative, vested, and final. (Cal. Code Regs., tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

Cont'd

SUMMARY OF CDFW RECOMMENDATONS

2A-25 The following is a summary of CDFW recommendations:

1. Conduct focused or protocol level surveys in all suitable habitat within the Project site for desert tortoise, Mojave fringe-toed lizard, tricolored blackbird, Swainson's hawk, burrowing owl, golden eagle, and desert kit fox.
2. 2A-26 Obtain a ITP for the life of the Project for desert tortoise, tricolored blackbirds, and Swainson's hawk.
3. 2A-27 Include desert tortoise exclusionary fencing as part of the project description.
4. 2A-28 Include acres of suitable foraging and potential nesting habitat for tricolored blackbird and Swainson's hawk as part of the DEIR analysis.
5. 2A-29 Prepare a Burrowing Owl Mitigation and Monitoring Plan and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.
6. 2A-30 Prepare a Desert Kit Fox Monitoring and Mitigation Plan and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.
7. 2A-31 Prepare a Bird and Bat Conservation Strategy and submit it to CDFW for approval a minimum of 60 days prior to the start of ground disturbing activities.
8. 2A-32 CDFW recommends the Lead Agency require the Project proponent to survey playas during the appropriate time of year and include an impact analysis to playas and the species that inhabit them in the DEIR. If State threatened, endangered, sensitive, species-of-concern, or special status species are found during surveys, then impacts to these species and habitat should be considered significant and mitigation should be required and identified in the DEIR, developed in consultation with CDFW.
9. 2A-33 Submit a Streambed Alteration notification package to CDFW.
10. 2A-34 CDFW recommends spacing the rows of solar panels more than 20 feet apart as a measure to reduce the lake effect impacts to nesting birds.

CONCLUSION

2A-35 CDFW appreciates the opportunity to comment on the DEIR to assist Lead Agency in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Wendy Campbell, Environmental Scientist at (760) 258-6921or by email at wendy.campbell@wildlife.ca.gov.

Sincerely,

Scott Wilson

Scott Wilson
Environmental Program Manger

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 12 of 12

cc: Wendy Campbell
CHRON
State Clearinghouse

WC:wc

2A CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW)

2A-1

Comment Summary:

This comment provides an introductory discussion and description of the project as proposed.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2A-2

Comment Summary:

This comment provides an introductory discussion and role of the CDFW.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2A-3

Comment Summary:

This comment provides an introductory discussion and description of the project as proposed.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2A-4

Comment Summary:

This comment states that the CDFW has discretionary authority over activities that could result in the "take" of any species listed as candidate, threatened, or endangered, pursuant to the California Endangered Species Act (CESA).

Response:

This comment describes the role of the CDFW. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2A-5

Comment Summary:

This comment states that the CDFW offers the comment and recommendations listed in this letter to assist the Lead Agency.

Response:

The responses to the comments and recommendations will be addressed where appropriate in this letter. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2A-6

Comment Summary:

This comment states that the desert tortoise is listed as a threatened species under the federal Endangered Species Act and CESA (Cal. Code Regs., tit. 14, § 670.5, subd. (b)(4)(A)). The comment states that the condition class of a burrow does not necessarily exclude use or occupation by a desert tortoise. The commenter also states that burrowing owls may also use desert tortoise burrows. The comment states that desert tortoise is considered to be established on-site because burrows have been identified. Therefore, the CDFW recommends the Lead Agency require the project proponent to obtain an Incidental Take Permit (ITP) for the life of the project.

Response:

A survey for desert tortoises was conducted in accordance with US Department of Fish and Wildlife (USFWS) protocols in April and May 2018, as discussed in Section 3.4, Biological Resources of the EIR, and the complete report documenting the surveys and results is in **Appendix E-3** of the EIR. No live tortoises or definitive sign of desert tortoises were found. The only potential sign noted was two Class 4 burrows; both had flat floors typical of those used by desert tortoises but no other indication that they had been used by tortoises. Without additional evidence of desert tortoise, there are insufficient grounds to conclude that desert tortoise is present within the project site.

As discussed in Section 4 of the Desert Tortoise Pre-Project Survey Report provided as **Appendix E-3** of the EIR, in addition to the focused surveys conducted in April and May 2018, biologists spent approximately 102 person-days (Section 4, p. 12 **Appendix E-3**) in the project area conducting other surveys and did not find any desert tortoises or signs of their presence. As also stated in the survey, the site is isolated from known occupied desert tortoise habitat by Interstate 40 to the south and Interstate 15 to the north. No recent desert tortoise observations have been made in the fragmented area left between these highways. Additionally, as discussed in Impact 3.4-1 in Section 3.4, Biological Resources of the EIR, implementation of mitigation measure **BIO-1** would require a preconstruction clearance survey to confirm that no desert tortoise is present on-site prior to construction.

Further, mitigation measure **BIO-1** includes worker awareness training that will address the importance of avoiding desert tortoise and the consequences of noncompliance. Mitigation measure **BIO-1** also describes specific activities that would be implemented to prevent harm to or harassment of a desert tortoise in the unlikely event that an individual is identified on the project site, as supported by survey data. Implementation of mitigation measure **BIO-1** would result in avoidance of desert tortoise and therefore an ITP is not warranted. Because desert

tortoises are not known to occur in the project area, and because implementation of mitigation measure **BIO-1** would result in avoidance of desert tortoises in the unlikely event one is found, an ITP is not warranted.

2A-7

Comment Summary:

This comment states that even though exclusionary fencing is an appropriate mitigation measure, the project proponent is not allowed to move or handle the desert tortoise without an ITP from the CDFW.

Response:

The County acknowledges the CDFW's comments and understands that desert tortoises cannot be handled without an ITP. As stated in mitigation measure **BIO-1** in Section 3.4, Biological Resources of the EIR, "No person(s) shall be allowed to touch a tortoise without authorization from the US Fish and Wildlife Service (USFWS) and CDFW." Thus, in the unlikely event that a desert tortoise is encountered during construction and must be moved, the project proponent will request consultation from the USFWS and CDFW to comply with federal and state regulations.

Mitigation measure **BIO-1** states that exclusionary/perimeter fencing may be required based on consultation with the CDFW should desert tortoise be determined to be on-site during preconstruction clearance surveys or during project construction. It is noted that CDFW recommends exclusionary fencing be included in the project; should tortoise be identified on the project site, exclusionary fencing may be installed.

2A-8

Comment Summary:

This comment states that handling a desert tortoise is considered a "take"; therefore, the CDFW recommends that the Lead Agency require the project proponent to obtain an ITP for the life of the project.

Response:

The County acknowledges that desert tortoises cannot be handled without an ITP. As stated in mitigation measure **BIO-1** in Section 3.4, Biological Resources of the EIR, "If the species is present on-site, individual(s) shall be allowed to leave the site on their own" and "no person(s) shall be allowed to touch a tortoise without authorization from the US Fish and Wildlife Service (USFWS) and CDFW." Thus, in the unlikely event that a desert tortoise is encountered during construction and must be moved, the project proponent will request consultation with the USFWS and CDFW to comply with federal and state regulations.

2A-9

Comment Summary:

This comment states that the Lead Agency should require the project proponent to survey all suitable Mojave fringe-toed lizard habitat and then include the survey results and impacts analysis in the EIR.

Response:

A general biological resources survey was conducted on the project site and documented in "Administrative Draft Biological Resources Technical Report, Daggett Solar Power Facility, June 25, 2018" (**Appendix E-1** of the EIR). The survey was conducted to document general vegetation and potential habitat for special-status species. In addition, a site survey was performed to delineate state and federal jurisdictional waters; the results of the survey are contained in "Administrative Draft Jurisdictional Report, Daggett Solar Project, May 17, 2018" (**Appendix E-4** of the EIR). Based on the site-specific field data collected during these surveys, a habitat assessment was conducted for the Mojave fringe-toed lizard. Biologists surveyed all sites with loose, sandy soils that could be potential habitat for this species including ditches, playas, and washes with loose, sandy soil.

As discussed in Section 3.4, Biological Resources of the EIR and more specifically in the "Administrative Draft Biological Resource 2018 Spring/Summer Survey Report, December 14, 2018" (**Appendix E-2** of the EIR), a species-specific survey for Mojave fringe-toed lizards was conducted in April-June 2018 within all potential habitat identified in the project site. The survey area, methodology, and results are included in **Appendix E-2** of the EIR. There is no focused survey protocol for this species, so, based on the recommendation of USFWS staff received in an email dated January 10, 2018, the survey was conducted based on the survey protocol for Coachella Valley fringe-toed lizards. The plan for this survey was reviewed and approved by CDFW staff in February 2018 (email from CDFW staff on February 28, 2018). No Mojave fringe-toed lizards were detected during the presence/absence surveys conducted in April-June 2018.

2A-10

Comment Summary:

This comment states that the CDFW recommends that the project proponent complete nesting bird surveys and consult with a qualified ornithologist for advice in developing specific avoidance and minimization measures to ensure impacts to nesting birds do not occur as a result of the project.

Response:

As discussed in Section 3.4, Biological Resources of the EIR, mitigation measure **BIO-5** will be implemented to avoid potential project impacts to nesting birds protected under the MBTA. The nesting season discussed in **BIO-5** is February 1–August 31; however, the County understands that nesting may occur outside of this window.

Therefore, prior to construction, surveys for nesting birds will be planned by a qualified biologist and conducted prior to any ground-disturbing activities that occur within the nesting season and actions will be taken to protect bird nests and comply with federal and state regulations. Mitigation measure **BIO-2** will be implemented to avoid potential project impacts to nesting burrowing owls and includes avoidance measures for work conducted near active burrowing owl burrows during the nesting season. Therefore, further consultation regarding mitigation measures is not required.

2A-11

Comment Summary:

This comment states that the CDFW recommends that the project proponent prepare a Bird and Bat Conservation Strategy and submit it to the CDFW for approval a minimum of 60 days prior to start of ground-disturbing activities.

Response:

In response to comments from the CDFW, mitigation measure **BIO-5** has been updated to include the development and implementation of a Bird and Bat Conservation Plan. The Plan will outline policies and procedures to minimize unanticipated impacts to birds and bats during operations. Site personnel will be provided a set of standardized instructions to follow in response to any bird or bat incidents on-site. The Plan shall include procedures on how to document any bird or bat species discovered dead or injured on the project site. In the event of an injury or death of a listed species, CDFW and/or USFWS shall be contacted to consult on appropriate next steps. The Plan shall be implemented for the life of the project.

2A-12

Comment Summary:

This comment states that the CDFW recommends spacing the solar panels by more than 20 feet apart to mitigate potential bird collisions with solar panels due to the “lake effect.”

Response:

As stated in Section 3.4, Biological Resources of the EIR, while impacts to individual birds from collisions may be expected to occur over the life of the proposed project, the frequency and nature of collisions would not be expected to be significantly exacerbated due to the project, and no population-level impacts are anticipated. The scientific literature has not established that PV solar projects create a significant impact to water birds due to a “lake effect.” As such, project impacts associated with bird collisions are considered less than significant. Furthermore, the applicant would voluntarily implement a company-wide wildlife incident reporting program that would require the notification of any downed state- and/or federally listed species, if found, to state and/or federal wildlife agencies in accordance with applicable law.

As stated in Section 2.0, Project Description of the EIR, panels would be organized in rows in a uniform grid pattern, with each row separated by approximately 10-20 feet (from post to post).

CEQA does not require mitigation measures for impacts considered to be less than significant. Additionally, the County is not aware of any research or other documentation indicating that spacing solar panels more than 20 feet apart has any impact on avian perception of solar panels. If the applicant spaced the panels out by more than 20 feet, then either the applicant could not produce the same amount of energy or would have to increase the project footprint, which would cause additional biological impacts. Therefore, the panels will not be spaced more than 20 feet apart.

2A-13

Comment Summary:

This comment states that the CDFW recommends the Lead Agency include acres of suitable foraging and potential nesting habitat for tricolored blackbird as part of the EIR analysis. The CDFW also recommends that the Lead Agency require the project proponent to obtain an ITP for the life of the project.

Response:

As discussed in Section 3.4, Biological Resources of the EIR and more specifically in the "Administrative Draft Biological Resource 2018 Spring/Summer Survey Report, December 14, 2018" (**Appendix E-2** of the EIR), tricolored blackbirds were incidentally observed during Mojave fringe-toed lizard and burrowing owl surveys in May 2018, foraging in agricultural fields near Minneola Road, south of Silver Valley Road. Surveyors were not able to estimate the number of tricolored blackbirds observed as they were seen and heard in flocks also consisting of Brewer's blackbirds, European starlings, and red-winged blackbirds. Birds were observed flying to and from an artificial pond with cattails located in the backyard of a residence on the east side of Minneola Road, approximately 0.2 mile north of Chloride Road. While surveyors did not directly observe this habitat, it is likely that tricolored blackbirds nest in this pond due to their presence in the area during the nesting season. However, no tricolored blackbird nests were observed on the project site and none are expected due to the lack of suitable habitat. Additionally, tricolored blackbirds were not observed foraging in other areas of the project site.

Nests or nesting habitat of tricolored blackbirds will not be disturbed as a result of the project and no individuals of this species will be at risk of being harmed since there are no nests on the project site; therefore, an ITP for this species is not warranted. Additionally, during preconstruction surveys, unexpected new nests would be identified and avoided.

2A-14

Comment Summary:

The comment states that the EIR does not provide the number of acres of suitable foraging or potential nesting habitat for Swainson's hawk that is present within the project site. The commenter states that the CDFW recommends the Lead Agency include acres of suitable foraging and potential nesting habitat for Swainson's hawk as part of the EIR analysis.

Response:

Section 3.4, Biological Resources and **Appendix E-2** describe the surveys conducted to determine the presence of nesting Swainson's hawks and other raptors within and near the project site. Based on California Natural Diversity Database (CNDDB) records and a literature search, Swainson's hawks have been observed overwintering and migrating within and near the project area/vicinity but have not been recently recorded nesting there. The nearest recorded nest is in Apple Valley, approximately 25 miles south of the project site, and nesting was last observed there in 1932.

As further discussed in Section 3.4, Swainson's hawks do not nest in the Mojave Valley or elsewhere in that portion of central San Bernardino County. The nearest recent Swainson's hawk nesting area is in the Antelope Valley, approximately 60 miles to the west (CDFW 2017a). Four Swainson's hawks were observed on April 25 and April 26, 2018, foraging over an agricultural field that was being plowed within the project site. The proposed project would convert about 1,740 acres of agricultural land that could be used for foraging.

No Swainson's hawk nests were observed on the project site nor are they expected to nest on the project site. As such, project development is not expected to impact any Swainson's hawks nesting areas and would have a less than significant impact on foraging habitat.

2A-15

Comment Summary:

This comment states that the EIR did not clearly state that surveys for Swainson's hawk have been completed for the project site. The commenter states that the CDFW recommends focused surveys be conducted by using the California Energy Commission and Department of Fish and Game June 2, 2010 Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. The commenter also states that the CDFW considers conversion of foraging areas to renewable energy power plant facility sites to be habitat loss. Therefore, the CDFW recommends the Lead Agency require the project proponent to conduct focused surveys and obtain an ITP for the life of the project.

Response:

A survey for Swainson's hawks and other raptors was conducted in the spring of 2018, as discussed in Section 3.4, Biological Resources and **Appendix E-2** of the EIR. The plan for this survey was reviewed and approved by CDFW staff in February 2018 (email from CDFW staff on February 28, 2018). At least one raptor survey was conducted during each of the survey periods identified in the Swainson's Hawk Survey Protocol, and surveys were conducted according to the methodology discussed in the protocol. No nests or nesting behavior of this species were observed during that survey, and no Swainson's hawks were observed during those surveys after April. Observations made during the extensive surveys on the site indicate that the individuals observed in the study area were migrating to their eventual nesting sites, located outside of the

study area. Because no Swainson's hawks or their nests would be at risk of harm during implementation of this project, and no Swainson's hawk nests were observed within a 5-mile radius of accessible areas surveyed, an ITP is not warranted.

There are about 1,740 acres of cultivated land in the project area that might be used as foraging habitat for Swainson's hawks. Given the small number of Swainson's hawks in the vicinity and the absence of known recent nests within 60 miles, the conversion of the agricultural fields to solar generation uses would not constitute a significant loss of foraging land. There would continue to be sufficient remaining nesting and foraging habitat in the general area to support viable raptor populations on a regional scale.

2A-16

Comment Summary:

This comment states that the CDFW recommends focused surveys be conducted using the 2010 USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations. The commenter also states that the CDFW recommends that the project proponent prepare a Bird and Bat Conservation Strategy and submit it to the CDFW for approval a minimum of 60 days prior to the start of ground-disturbing activities.

Response:

A survey for golden eagles and other raptors was conducted in the spring of 2018 and historical nest sites near the project were checked, as discussed in Section 3.4, Biological Resources and **Appendix E-2** of the EIR. The plan for this survey was reviewed and approved by CDFW staff in February 2018 (email from CDFW Staff on February 28, 2018). The survey included multiple visits to known, accessible golden eagle nest sites within a 5-mile radius of the project site. No nests or nesting behavior of this species were observed during that survey.

In response to comments from the CDFW, mitigation measure **BIO-5** has been updated to include the development and implementation of a Bird and Bat Conservation Plan. The Plan will outline policies and procedures to minimize unanticipated impacts to birds and bats during operations. Site personnel will be provided a set of standardized instructions to follow in response to any bird or bat incidents on-site. The Plan shall include procedures on how to document any bird or bat species discovered dead or injured on the project site. In the event of an injury or death of a listed species, CDFW and/or USFWS shall be contacted to consult on appropriate next steps. The Plan shall be implemented for the life of the project.

2A-17

Comment Summary:

This comment states that even though surveys were performed for burrowing owl, the CDFW recommends focused surveys for burrowing owl be conducted in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (Staff Report) (CDFW 2012) and a Burrowing Owl Mitigation

and Monitoring Plan be prepared and submitted to CDFW a minimum of 60 days prior to the start of ground-disturbing activities.

Response:

As discussed in Section 3.4, Biological Resources and **Appendix E-2** of the EIR, a survey for burrowing owls was conducted in 2018 in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation. The plan for this survey was reviewed and approved by CDFW staff in February 2018 (email from CDFW Staff on February 28, 2018).

As discussed in mitigation measure **BIO-2** in the EIR, a Burrowing Owl Mitigation and Monitoring Plan will be prepared and submitted to CDFW a minimum of 60 days prior to the start of ground-disturbing activities. This will include the measures currently identified in mitigation measure **BIO-2** and appropriate measures in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation.

2A-18

Comment Summary:

This comment states that the buffer distance for areas with a high level of disturbance should be 500 meters. The CDFW recommends focused surveys for burrowing owl be conducted in accordance with the Staff Report and a Burrowing Owl Mitigation and Monitoring Plan be prepared and submitted to the CDFW for approval a minimum of 60 days prior to the start of ground-disturbing activities.

Response:

Based on recommendation from the CDFW, the buffer distance for burrowing owl has been increased to 500 meters. Revisions will be reflected in the EIR.

2A-19

Comment Summary:

This comment states that trapping or handling of desert kit foxes is not allowed. The commenter states that the EIR states that one desert kit fox was photographed with a wildlife camera in the project site.

Response:

Section 3.4, Biological Resources and **Appendix E-2** of the EIR discuss incidental observations of desert kit fox. To assess the presence and abundance of desert kit fox within the project site, all dens and other burrows found during surveys for desert tortoises and burrowing owls were examined for signs of kit fox, and all signs and observations of this species during these and other biological surveys were recorded. In addition, wildlife camera traps were set up on three occasions in May 2018 at sites with potential kit fox sign.

2A-20

Comment Summary:

This comment states that the CDFW recommends that the project proponent conduct surveys to determine desert kit fox presence and numbers within the project well in advance of the start of ground-disturbing activities. The commenter states that the CDFW also recommends the Lead Agency require the project proponent prepare a Desert Kit Fox Monitoring and Mitigation Plan and submit it to CDFW for approval a minimum of 60 days prior to the start of ground-disturbing activities.

Response:

Per mitigation measure **BIO-3**, a Desert Kit Fox Monitoring and Mitigation Plan will be prepared and submitted to CDFW a minimum of 60 days prior to the start of ground-disturbing activities. The Desert Kit Fox Mitigation and Monitoring Plan will include preconstruction survey methods and will describe preconstruction and construction-phase biological monitoring. Revisions will be reflected in the EIR.

2A-21

Comment Summary:

This comment states that the CDFW recommends the Lead Agency to require the project proponent to conduct a biological survey of playas during the appropriate time of year and include an impact analysis to playas and the species that inhabit them, such as fairy shrimp, in the EIR. If state-threatened, endangered, sensitive, species-of-concern, or special-status species are found during surveys, the commenter states that impacts to these species and habitat should be considered significant and mitigation should be required and identified in the EIR, developed in consultation with CDFW.

Response:

According to a site survey and analysis performed in the EIR (see **Appendix E-4**), there are no playas within the project site that are potential habitat for fairy shrimp or other species that depend upon playas. The features described in the Jurisdictional Delineation Report as desert flats are small, isolated drainage features. The largest of these is just south of agricultural fields near Minneola Road and Chloride Road (see Figure 10 in **Appendix E-4**). All other areas described as desert flats in the EIR are less than 0.5 acres in size and are low spots that appear to be created as the result of alluvium accumulation under desert shrubs in the vicinity. Project construction and operational facilities would avoid all jurisdictional waters.

Additionally, there are no known listed or special-status fairy shrimp species or other invertebrates that occur in the region. Therefore, surveys for invertebrates in the areas described as desert flats are not warranted.

2A-22

Comment Summary:

This comment states that 0.08 acres of state jurisdictional water exists within the project site and that early consultation with the CDFW is recommended since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources.

Response:

A jurisdictional delineation report including mapping of potential state jurisdictional waters was prepared in May 2018 and is included in **Appendix E-4** of the EIR. Based on the mapping provided in this report, the project proponent has designed the project to avoid any disturbance to state jurisdictional waters. Thus, the project will not result in any impacts to state jurisdictional waters and a Streambed Alteration Agreement is not required. The County understands that if project design changes and impacts to state jurisdictional waters would occur as a result of any design changes, the applicant may need to submit a Streambed Alteration notification package to the CDFW prior to impacts to these waters.

2A-23

Comment Summary:

This comment states that CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). The comment also states that any information about special-status species and natural communities detected during project surveys should be uploaded into the CNDDB.

Response:

CNDDB field forms will be prepared for all special-status species observations and submitted to the CDFW at the email address provided.

2A-24

Comment Summary:

This comment provides information on filing fees for the CDFW.

Response:

This comment is appreciated and noted.

2A-25

Comment Summary:

This comment summarizes CDFW's recommendations regarding recommended focused and protocol level surveys.

Response:

Focused surveys were conducted for all of these species in spring/summer 2018. The results of the surveys are provided in Section 3.4 and **Appendices E-2** and **E-3** of the EIR. Survey methodologies where applicable protocol was not available were submitted to the CDFW for approval prior to conducting surveys. The CDFW reviewed the plan and commented on the methodology in February 2018. All CDFW comments on the survey plan were addressed and submitted to the CDFW for final review and concurrence. CDFW confirmed that they had no further comments on the survey plan (February 28, 2018).

Refer to Response 2A-9 regarding recommended focused and protocol-level surveys.

2A-26

Comment Summary:

This comment summarizes CDFW's recommendations for ITPs for desert tortoise, tricolored blackbirds, and Swainson's hawk.

Response:

Based on the results of general biological resources surveys and focused surveys for the species mentioned above, the project will not result in take of any state-listed species, as defined in FGC §86: "Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Therefore, an ITP is not needed. As mentioned, if desert tortoise is observed on the project site during preconstruction surveys, the project applicant will submit an ITP application if deemed necessary at that time. Tricolored blackbirds and Swainson's hawk do not nest within the project site nor area and the area does not provide significant or high-quality foraging habitat.

Refer to Response 2A-13 regarding tricolored birds. Refer to response 2A-14 and 2A-15 regarding potential impacts to Swainson's hawk.

2A-27

Comment Summary:

This comment summarizes CDFW's recommendations on exclusionary fencing for desert tortoise.

Response:

Refer to Response 2A-7 regarding exclusionary fencing for desert tortoise.

2A-28

Comment Summary:

This comment summarizes CDFW's recommendations on suitable foraging and potential nesting habitat for tricolored blackbird and Swainson's hawk.

Response:

Swainson's hawks may forage in agricultural fields, a total of which 1,740 acres of potential foraging habitat were mapped within the project site. Refer to Response 2A-13 through 2A-15 regarding suitable foraging and potential nesting habitat for tricolored blackbird and Swainson's hawk.

2A-29

Comment Summary:

This comment summarizes CDFW's recommendations on a Burrowing Owl Mitigation and Monitoring Plan.

Response:

Refer to Response 2A-17 regarding a Burrowing Owl Mitigation and Monitoring Plan.

2A-30

Comment Summary:

This comment summarizes CDFW's recommendations on a Desert Kit Fox Monitoring and Mitigation Plan.

Response:

Refer to Response 2A-20 regarding a Desert Kit Fox Monitoring and Mitigation Plan.

2A-31

Comment Summary:

This comment summarizes CDFW's recommendations on a Bird and Bat Conservation Plan.

Response:

Refer to Response 2A-11 regarding a Bird and Bat Conservation Plan.

2A-32

Comment Summary:

This comment summarizes CDFW's recommendations on playa surveys.

Response:

Refer to Response 2A-21 regarding playa surveys.

2A-33

Comment Summary:

This comment summarizes CDFW's recommendations on Streambed Alteration notification to the CDFW.

Response:

Refer to Response 2A-22 regarding Streambed Alteration notification to the CDFW.

2A-34

Comment Summary:

This comment summarizes CDFW's recommendations regarding lake effect mitigation.

Response:

Refer to Response 2A-12 regarding the potential for avian impacts due to the lake effect. The comment summarizes information. The information is noted and entered into the record.

2A-35

Comment Summary:

This is the concluding statement of the letter.

Response:

This comment does not address the adequacy of the EIR.

Nievez, Tom

From: Ellsworth, Alisa@Wildlife <Alisa.Ellsworth@wildlife.ca.gov>
Sent: Wednesday, May 08, 2019 5:01 PM
To: Nievez, Tom
Subject: SCH# 2018041007 Daggett Solar Supplemental Comment Letter
Attachments: Daggett Solar CDFW CEQA comment letter SCH 2018041007 supplemental.pdf

2B-1

Hi Tom,

Please see our attached supplemental comment letter regarding the Daggett Solar Project.

Thank you,

Alisa Ellsworth
Senior Environmental Scientist
Lands North Program
787 North Main Street Suite 220
Bishop, Ca 93514
(760) 872-1173
Alisa.Ellsworth@wildlife.ca.gov

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Boulevard, Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

May 8, 2019

Mr. Tom Nievez
San Bernardino County
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

Dear Mr. Tom Nievez:

Daggett Solar Power Facility (PROJECT)
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SCH# 2018041007

The California Department of Fish and Wildlife (CDFW) with this letter provides additional comments to the April 29, 2019 letter of the Notice of Availability of a Draft Environmental Impact Report (DEIR) from San Bernardino County (Lead Agency) for the Daggett Solar Power Facility (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

2B-2

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code (FGC).

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (FGC, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

2B-3

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

2B-3 *Cont'd*

to exercise regulatory authority as provided by the FGC. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (FGC, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (FGC, § 2050 et seq.), the project proponent may seek related take authorization as provided by the FGC.

PROJECT DESCRIPTION SUMMARY

Proponent: Daggett Solar Power 1 LLC
Location: The project is bounded by the town of Daggett approximately 0.5 miles to the west; the Mojave River, Yermo, and Interstate 15 to the north; Barstow-Daggett Airport, Route 66, and Interstate 40 to the south; and Newberry Springs and Mojave Valley to the east in San Bernardino County.

2B-4

Project Description
Daggett Solar Power 1 LLC, a subsidiary of Clearway Energy Group LLC, proposes constructing, operating, maintaining, and decommissioning of a utility-scale, solar photovoltaic electricity generation and energy storage facility with associated on-site substations, inverters, fencing, roads and supervisory control and data acquisition system that would produce up to 650 megawatts (MW) of power and include up to 450 MW of battery storage capacity on approximately 3,500 acres of land. The proposed project would utilize existing electrical transmission infrastructure adjacent to the existing Coolwater Generating Station, a recently retired natural gas-fired power plant, to deliver renewable energy to the electric grid.

PROJECT SPECIFIC COMMENTS AND RECOMMENDATIONS

Following review of the DEIR CDFW offers the comments and recommendations below to assist the Lead Agency in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on water and associated biological resources.

HYDROLOGY

2B-5

CDFW offers the following comments and recommendations in addition to CDFW's April 29, 2019 comment letter. In addition to being the state trustee agency for the fish and wildlife resources of the state, CDFW is a party to the *City of Barstow v City of Adelanto* Judgment entered on January 10, 1996 (Judgment) and a landowner in the Baja Subarea (Camp Cady Wildlife Area). The proposed Project occurs within the adjudicated Mojave Basin and more specifically one of five subareas called the Baja Subarea. According to the Mojave Water Agency Watermaster, the Baja Subarea has been in continual overdraft since at least 1950 and the estimated groundwater storage has declined by over 400,000 acre-feet since the Judgment was finalized in 1996.

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 3 of 4

2B-5 *Cont'd*

In CDFW's July 9, 2018 letter, concerns were raised regarding potential impacts to the Camp Cady Wildlife Area and further declines in groundwater storage due to the acquisition of land for the project that controlled 15,271 acre-feet of adjudicated water production rights in the Daggett area of the Baja Subarea. It is quite possible that future use of those water rights could occur east of the Calico-Newberry Fault which would cause further damage to riparian resources at Camp Cady Wildlife Area and environmental damage to the Newberry Springs area through increasing ground to water depths, causing more desert habitat being converted to wind-blown sand.

2B-6

In a letter prepared by Mojave Water Agency Watermaster (Watermaster) on April 29, 2019, the Watermaster points out that the DEIR is inconsistent with the San Bernardino County General Plan Goal CO5, Page V-27 "The County will protect and preserve water resources for the maintenance, enhancement, and restoration of environmental resources" and the "Policy" that "The County Water Masters will continue to monitor the County's adjudicated groundwater basins to ensure a balanced hydrological system in terms of withdrawal and replenishment of water from groundwater basins" (Policy CO 5.2, page V-27). Under Impact 3.9-2 of the DEIR, *the project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a new deficit in aquifer volume or a lowering of the local groundwater table level*, four scenarios are analyzed and the conclusion is drawn that no feasible mitigation measures are available.

CDFW disagrees with the above conclusion. Furthermore, CDFW agrees with the Watermaster's conclusion in their April 29, 2019 letter that the Project will likely contribute to increased water production east of the Calico-Newberry Fault and directly impact Camp Cady Wildlife Area, the riparian habitat along the Mojave River and other critical resources in the area that depend upon groundwater. CDFW believes viable mitigation measures exist as explained in the Watermaster's letter. We recommend the County condition Project approval to either retire Base Annual Production rights associated with the properties to be acquired that are currently being farmed or sequester water rights so that they can only be used on the west side of the Baja Subarea.

CONCLUSION

2B-7

CDFW appreciates the opportunity to comment on the DEIR to assist Lead Agency in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Alisa Ellsworth, Senior Environmental Scientist (Supervisor) at (760) 872-1173 or by email at alisa.ellsworth@wildlife.ca.gov.

Daggett Solar Power Facility
Draft Environmental Impact Report
SCH# 2018041007
Page 4 of 4

Sincerely,

Scott Wilson

2B-7

Cont'd

Scott Wilson
Environmental Program Manger
Inland Desert Region

cc: Alisa Ellsworth
Wendy Campbell
Chris Hayes
CHRON
State Clearinghouse

WC:wc

2B CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

2B-1

Comment Summary:

This comment states that this letter is the supplemental letter to Letter 2A.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2B-2

Comment Summary:

This comment provides an introductory discussion and description of the project as proposed.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2B-3

Comment Summary:

This comment provides an introductory discussion of the role of the CDFW.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2B-4

Comment Summary:

This comment provides a description of the project as proposed.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

2B-5

Comment Summary:

This comment states that the CDFW is a party to the City of Barstow v. City of Adelanto Judgement and a landowner of the Camp Cady Wildlife Area. The comment states that the project is located in the adjudicated Mojave Basin Baja Subbasin that has been in continual overdraft since 1950. This comment states that if in the future the water rights are moved east of the Calico-Newberry Fault, then potential riparian impacts to Camp Cady Wildlife Area and environmental damage to Newberry Springs may occur.

Response:

The potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Indirect impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts are unlikely and could occur with or without the approval of the project. Refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin.

2B-6

Comment Summary:

This comment cites the letter from the Mojave Water Agency Watermaster (Letter 3) where the letter states that the project is inconsistent with San Bernardino County General Plan Goal CO 5. The commenter also disagrees with the findings of Impact 3.9-2 of the EIR. In addition, the commenter agrees with the Watermaster's conclusion that the project will likely contribute to increased water production east of the Calico-Newberry Fault and directly impact the Camp Cady Wildlife Area. The commenter states that adequate mitigation is available in the form of either retirement of the landowners' Base Annual Production rights or to sequester the landowners' water rights so that they could only be used in the west side of the Baja Subarea.

Response:

The potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts are unlikely and could occur with or without the approval of the project. There is an insufficient nexus between the project's impacts on water supply and the mitigation measures proposed by the CDFW. Refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin.

2B-7

Comment Summary:

This is the conclusion of the letter.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

MOJAVE BASIN AREA WATERMASTER

FOR
CITY OF BARSTOW, ET AL, VS. CITY OF ADELANTO, ET AL,
CASE NO. 208568 - RIVERSIDE COUNTY SUPERIOR COURT

Delivered via email and USPS first class

April 29, 2019

Tom Nievez, Contract Planner
Land Use Services Department
County of San Bernardino
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415

Re: Comments of the Draft Environmental Impact Report for Daggett Solar Power Facility, Daggett Solar Power 1, LLC

Dear Mr. Nievez:

As stated in our previous letters dated June 12, 2018 and September 24, 2018, the Mojave Basin Area Watermaster is responsible for enforcing terms of the Judgment in the matter of the City of Barstow, et al. v. City of Adelanto, et al. The Judgment, dated January 10, 1996 adjudicated the water rights of all parties within the Mojave Basin Area boundary (about 3,400 square miles). The adjudication of water rights was initiated as a result of continuous overdraft in the Basin over many years. The referenced project is within the Mojave Basin Area and within what is known as the Baja Subarea.

3-1

The population in the Baja Subarea is approximately 4,700 people who share the same limited water supply. Water use in the Baja Subarea consists mostly of agriculture, industrial, private recreation (lakes), municipal, and small domestic uses. Total water production in the area was about 24,500 acre-feet for 2017-18. The long-term average annual water supply is estimated to be about 11,600 acre-feet. The Baja Subarea has two distinct regions divided by the Calico-Newberry Fault, the Western Baja Region (Daggett area) and the Eastern Baja Region (Newberry Springs area). Natural water recharge is lower in eastern Baja than in western Baja. Water levels in the area continue to drop 1-2 feet per year as overdraft continues.

We have reviewed the Hydrology and Water Quality section under Impact 3.9-2, of the Draft Environmental Impact Report prepared for the Daggett Solar Power project. We have also reviewed the four Scenarios that were presented in the same section.

3-2

The Draft EIR fails to address the impact below and does not provide sufficient mitigation to alleviate the impact. The EIR specifically states that:

> "The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a new deficit in aquifer volume or a lowering of the local groundwater table level. Impacts would be significant and unavoidable".

13846 Conference Center Drive • Apple Valley, California 92307
(760) 946-7000 • (800) 254-4242 • FAX (760) 240-2642 • E-Mail: Watermaster@mojavewater.org

Daggett Solar Power 1, LLC, Draft EIR
April 29, 2019
Page 2

3-3 The Draft EIR is inconsistent with the County General Plan, which states that, "The County will protect and preserve water resources for the maintenance, enhancement, and restoration of environmental resources" (GOAL CO 5, Page V-27). The County General Plan also states as a "Policy" that "The County Water Masters will continue to monitor the

3-4 County's adjudicated groundwater basins to ensure a balanced hydrological system in terms of withdrawal and replenishment of water from groundwater basins" (Policy CO 5.2, page V-27).

3-5 The Watermaster implements the Judgment at the direction of the Court and is obligated to manage the subareas for sustainability. Watermaster is requesting that the County require mitigation for increased overdraft that could occur in the eastern Baja area if this project is approved. We recognize that total water production in the Baja Subarea might decrease if this project were approved, but the Watermaster would like the County to recognize the impact of increased water production on the hydrologic system in the eastern Baja area. This area would be adversely affected and would further be thrown out of balance, which directly contradicts the policy outlined in the County's General Plan and requires mitigation.

3-6 Additionally, negative impacts to riparian habitat and California Department of Fish and Wildlife's (CDFW) Camp Cady Wildlife Area could be increased (see attached CDFW letter dated July 9, 2018). According to the San Bernardino County General Plan, there are several areas listed within the County that are considered an "Area of Critical Environmental Concern" by the Bureau of Land Management. The Afton Canyon area is one such location. If water production is moved from western Baja to eastern Baja, it is also likely that the Afton Canyon area and the riparian habitat there would be impacted.

3-7 As previously recommended, mitigation could include requiring that the project proponent procure the Base Annual Production rights associated with the properties to be acquired that are currently being farmed. We suggest that these rights be held by the project proponent and not used or "sequestered to the benefit of the basin".

3-8 The sequestration of water rights is a viable mitigation against the potential for western Baja rights being used and causing an increase in water production by moving water rights for use in the eastern Baja area. The County cannot rely on statements of current land owners to assure that the water rights will not be used in the eastern Baja area. The Base Annual Production rights under the Judgment are freely transferrable within the Baja Subarea and can be used anywhere within Baja. The rights could be purchased by new owners and exercised on properties yet to be identified, anywhere in the Baja Subarea.

3-9 There is precedent for requiring the sequestration of use of water rights. Specifically, the Mojave Solar project (Abengoa Solar) located in the Harper Lake area was required by the California Energy Commission to sequester a large portion of their water rights (in addition to the adjustment made by the Watermaster as required by the Judgment) and their water use was limited to a specified amount annually, so as not to cause a lowering of the water table in that area.

3-10 The eastern Baja area contains a higher concentration of small or minimal users who are economically disadvantaged and cannot afford to drill their wells deeper. Recently, at meetings of the Watermaster, these small users have stated that their wells are being affected by the falling water table in the area.

3-11 We are actively working to make all areas of the Mojave Basin Area sustainable pursuant to the Judgment. The Baja Subarea is of particular concern and is subject to ongoing court hearings as to how to mitigate the overdraft. It is important to mitigate for any potential increase in eastern Baja water production. The conclusion that the identified significant and unavoidable impact cannot be mitigated is incorrect. The impact can be avoided by the project proponent acquiring the Base Annual Production Rights associated with the land proposed for purchase for the project.

3-12 We would be happy to meet with County staff to discuss additional ideas for mitigating this impact other than noted above.

If you have any questions, please feel free to contact me at 760-946-7056.

Sincerely,

V. Wiegenstein

Valerie Wiegenstein
Watermaster Services Manager

Attachments: Watermaster letters of June 12, 2018 and September 24, 2018
Department of Fish and Wildlife letter of July 9, 2018

cc: Board of Directors/Watermaster Board
William J. Brunick, Watermaster Legal Counsel
Tom McCarthy, General Manager
Robert C. Wagner, Watermaster Engineer

MOJAVE BASIN AREA WATERMASTER
FOR
CITY OF BARSTOW, ET AL, VS. CITY OF ADELANTO, ET AL,
CASE NO. 208568 - RIVERSIDE COUNTY SUPERIOR COURT

June 12, 2018

Tom Nievez, Contract Planner
Land Use Services Department
County of San Bernardino
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415

Re: Notice of Preparation (NOP)
Daggett Solar Power Facility
Daggett Solar Power 1, LLC

Dear Mr. Nievez:

The Mojave Basin Area Watermaster is responsible for enforcing terms of the Judgment in the matter of the City of Barstow, et al. v. City of Adelanto, et al. The Judgment dated, January 10, 1996 adjudicated the water rights of all parties within the Mojave Basin Area boundary (about 3,400 square miles) due to the overdraft in the Basin. The referenced project is within the Mojave Basin Area and within what is known as the Baja Subarea.

The Watermaster has been in the process of groundwater production verification and reporting to the court for upcoming hearings related to the current conditions in Baja and we submit this letter as of this date to document our concerns.

A copy of the Judgment is attached for your information. The County of San Bernardino is a stipulating Party to the Judgment and has complied with all terms of the Judgment. A map of the Adjudicated boundary is attached and the Baja Subarea is contained therein. The Baja Subarea has been in a state of continual overdraft since at least 1950. Watermaster estimates that water in groundwater storage has declined by over 400,000 acre-feet since entry of Judgment in 1996. Continued overdraft threatens the water supply of the residents of Baja and threatens sensitive environmental habitats maintained by California Department of Fish and Wildlife.

3-13

The current population of the Baja Subarea is about 4,700 people, all dependent on the same limited water supply. Water use within the Subarea consists of agriculture, private recreation, industrial, municipal and domestic uses, including small minimal producers (those pumping 10 acre-feet or less under the Judgment). Agricultural pumpers produced 19,322 acre-feet; private recreational lakes pump 1,852 acre-feet to offset evaporation, and pump 637 acre-feet for domestic indoor and outdoor uses. Industrial users pump 744 acre-feet, municipal and domestic users pump 1,136 acre-feet. The small minimal producers are estimated to have pumped up to 2,228 acre-feet.

13846 Conference Center Drive • Apple Valley, California 92307
(760) 946-7000 • (800) 254-4242 • FAX (760) 240-2642 • E-Mail: Watermaster@mojavewater.org

Current water production and consumptive use exceeds the average net long-term supply in Baja. Water levels continued to decline in 2016-17 and have declined as much as 100 feet in some areas and continue to fall at a rate of 1 to 2 feet per year. The continued overdraft represents a depletion of water in storage. The depletion of storage is likely to continue for many years due to over-pumping. The Watermaster engineer will recommend to the Riverside County Superior Court, which has continuing jurisdiction, an additional rampdown of Free Production Allowances for Baja at the annual hearing in July of 2018.

Based on the map provided in the NOP, the proposed project will require acquisition of lands from various agricultural entities that control 15,271 acre-feet of adjudicated water production rights (Base Annual Production rights, BAP) in the Daggett area of Baja. The acquisition of these properties and subsequent land use change from historic agricultural use to solar photovoltaic use may affect water use for the area. The acquisition and retirement of these water rights is critically needed to bring the basin into balance.

If the Project does not acquire the water production rights on lands acquired by the project, the Mojave Basin Area Watermaster requests that the following studies occur:

3-13

Cont'd

1.) **If offsite water will be required for the project, these offsite sources need to be identified. Any impact to groundwater from offsite sources needs to be fully mitigated to prevent further water level decline.**

2.) **A groundwater well testing plan should be developed to identify local pumping impacts.**

3.) **All property owners within a mile radius should be contacted and asked to participate in having their wells monitored.**

4.) **The project construction water needs to be identified and should be confined to imported water to meet its construction needs.**

5.) **Well interference studies should be conducted on adjoining wells. A maximum rate of groundwater that can be safely pumped without impacts on the closest well should be determined.**

6.) **A groundwater investigation should be required to evaluate potential groundwater impacts if water production rights are not acquired on the real property identified by the project and that production is then moved to other areas within the Baja Subarea by the property owners from whom the land is being acquired.**

The Watermaster must report to the Court on any matters affecting water supply, use and disposal. The land use changes proposed will result in impacts to the Baja Subarea that will be subject to the Court's continuing jurisdiction.

If you have any questions, please feel free to contact me at 760-946-7056.

Sincerely,

Valerie Wiegenstein
Watermaster Services Manager

3-13
Cont'd

cc: **Tom McCarthy, General Manager**
William J. Brunick, Legal Counsel

Attachments: **Judgment After Trial dated January 10, 1996**
Map of the Adjudicated Mojave Basin Area

MOJAVE BASIN AREA
WATERMASTER
FOR
CITY OF BARSTOW, ET AL, VS. CITY OF ADELANTO, ET AL,
CASE NO. 208568 - RIVERSIDE COUNTY SUPERIOR COURT

September 24, 2018

Tom Nievez, Contract Planner
Land Use Services Department
County of San Bernardino
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415

Re: Notice of Preparation (NOP)
Daggett Solar Power Facility
Daggett Solar Power 1, LLC

Dear Mr. Nievez:

As indicated in our previous letter dated June 12, 2018, the Mojave Basin Area Watermaster is responsible for enforcing terms of the Judgment in the matter of the City of Barstow, et al. v. City of Adelanto, et al. The Judgment dated, January 10, 1996 adjudicated the water rights of all parties within the Mojave Basin Area boundary (about 3,400 square miles) due to the overdraft in the Basin. The referenced project is within the Mojave Basin Area and within what is known as the Baja Subarea.

3-14

The Baja Subarea has been in a state of continual overdraft since at least 1950. Watermaster estimates that water in groundwater storage has declined by over 400,000 acre-feet since entry of Judgment in 1996. Continued overdraft threatens the water supply of the residents of Baja and threatens sensitive environmental habitats maintained by California Department of Fish and Wildlife. Long-term sustainability the area is also at risk.

We understand that photovoltaic solar farms result in a fairly low water use compared to the current agricultural operations, however, we are concerned that if the Base Annual Production rights of the current agricultural producers are not purchased and retired by the project proponent then those rights may be used in other areas of the Baja Basin and cause increased production, with negative impacts.

As requested, the following is a list of documents and links that detail the overdraft conditions and water level declines in the Baja Subarea:

13846 Conference Center Drive • Apple Valley, California 92307
(760) 946-7000 • (800) 254-4242 • FAX (760) 240-2642 • E-Mail: Watermaster@mojavewater.org

Twenty-Fourth Annual Report of the Mojave Basin Area Watermaster (link)
http://www.mojavewater.org/annual_report.html

Chapter 3 – Subarea Water Levels (page 26)

"Baja water levels continue to decline due to over pumping and limited recharge opportunities. Wells near the river in the Daggett area respond to recharge when it is available but continue to fall immediately following storm events. Water levels elsewhere in Baja show declines without indicating recovery after storms."

Figure 3-14 - Baja Subarea Hydrographs:

http://www.mojavewater.org/files/BajaHydro_2018.pdf

Chapter 3 – State of the Basin (page 28)

"Conditions in Baja (Figure 3-20) have yet to stabilize since 1996. As such, optimal operating parameters have not been established. Figure 3-20, (for Baja), shows the continued overdraft and continued depletion of groundwater in storage."

Figure 3-20 – Baja Subarea Net Change in Storage (following page 29)

Chapter 5 - Free Production Allowance for Water Year 2018-19 (page 36)

3-14
Cont'd

Baja – 35% of BAP

Pursuant to the Judgment, additional Rampdown in Baja is warranted. FPA exceeds the PSY by more than 5% of BAP and current water production and consumptive use exceeds the average net long-term supply in Baja. Water levels continued to decline in 2016-17. Long-term water levels indicate Baja remains in overdraft and the current conditions are unsustainable. The current data and conditions in Baja require an additional 5% Rampdown.

Notice of Motion and Motion to Adjust Free Production Allowance for Water Year 2018-2019; Memorandum of Points and Authorities and Declaration of Robert C. Wagner, P.E. in Support Thereof dated 4/16/18 (link)

http://www.mojavewater.org/courtservices.html

Baja Subarea, Wagner Declaration - Paragraphs 13 - 18:

2015 Mojave Water Agency's Urban Water Management Plan (link)

http://www.mojavewater.org/document-library.html

Section 3.4.3.1 Groundwater Levels (page 3-19 and 3-20): (link)

"Baja Subarea - Baja water levels continue to decline due to over-pumping and limited recharge. Wells near the river in the Daggett area respond to recharge

Daggett Solar Power 1, LLC--NOP
September 24, 2018
Page 2

when it is available following large storm events. Water levels elsewhere in Baja, especially areas away from the Mojave River, indicate declines that are not significantly impacted from storm events."

Section 3.4.3.2 Available Groundwater Supplies (page 3-22 and 3-23): (link)

"Projected groundwater pumping within each Subarea of the Mojave Basin Area is summarized in Table 3-7."

Table 3-7: Mojave Basin Area Projected Groundwater Production (AFY)

Mojave Basin Area[a]	2015	2020	2025	2030	2035	2040
Subareas						
Alto	71,300	80,346	84,767	90,163	95,747	100,823
Baja	29,700	29,700	29,700	29,700	29,700	29,700
Centro	20,100	20,576	20,555	20,551	20,557	20,649
Este	6,800	6,800	6,800	6,800	6,800	6,800
Oeste	3,600	4,002	4,236	4,517	4,796	5,061
Total	131,500	141,424	146,058	151,731	157,600	162,933

3-14
Cont'd

Note:
(a) Acre-foot numbers represent groundwater production only and do not include demands met directly with SWP sources.

"Table 3-9 summarizes the long term average net natural water supply estimates for each of the Subareas that comprise the Mojave Basin Area. The long-term supply to each Subarea, and the Basin Area as a whole, is assumed to available in all year types, normal, single dry year and multiple dry year. "

Table 3-9: Mojave Basin Area Groundwater Basin Supply Reliability

Anticipated Supply	Normal Year [a] (AFY)	Single-Dry Water Year (AFY)	Multiple Dry Water Year (AFY)
Subareas			
Alto	25,900	25,900	25,900
Baja	11,428	11,428	11,428
Centro	15,713	15,713	15,713
Este	1,500	1,500	1,500
Oeste	700	700	700
Total	55,241	55,241	55,241

Note:

(a) Water supply balance in Table 6-2 from the Twenty-second Annual Report of the Mojave Basin Area Watermaster, Water Year 2014-15, based on long-term average net natural water supply and outflow.

Daggett Solar Power 1, LLC--NOP
September 24, 2018
Page 2

USGS Mojave Regional Water-Level Reports and other Studies

http://www.mojavewater.org/regional-water-table.html

https://ca.water.usgs.gov/mojave/index.html

Water-Level Studies by Year		
1992	Map Download	Link to Water-Level Study
1994	Map Download	Link to Water-Level Study
1996	Map Download	Link to Water-Level Study
1998	Map Download	Link to Water-Level Study
2000	Map Download	Link to Water-Level Study
2002	Map Download	Link to Water-Level Study
2004	Map Download	Link to Water-Level Study
2006	Map Download	Link to Water-Level Study
2008	Map Download	Link to Water-Level Study
2010	Map Download	Link to Water-Level Study
2012	Map Download	Link to Water-Level Study
2014	Map Download	Link to Water-Level Study
2016	Map Download	Link to Water-Level Study

3-14
Cont'd

Simulation of Ground-Water Flow in the Mojave River Basin, California, United States Geological Survey, Water Resources Investigations Report 01-4002, (2001) https://pubs.usgs.gov/wri/wri014002/

Stamos, C. L., Nishikawa, T., and Martin, P. 2001. "Water Supply in the Mojave River Ground-Water Basin, 1931-99, and the Benefits of Artificial Recharge." U.S. Geological Survey, Water Fact Sheet 122-01 https://pubs.usgs.gov/fs/fs-122-01/

Page 3: Cumulative overdraft in Baja (about 1.1 million acre-feet)

We incorporate our previous letter (attached) as well as the letter submitted by the Department of Fish and Wildlife on this subject for your reference.

If you have any questions or would like to meet with Watermaster and Mojave Water Agency staff to discuss further, please feel free to contact me at 760-946-7056.

3-14
Cont'd

Sincerely,

Valerie Wiegenstein
Watermaster Services Manager

cc: Tom McCarthy, General Manager
William J. Brunick, Legal Counsel

Attachments: Watermaster letter dated June 12, 2018 w/o attachments
Department of Fish and Wildlife letter dated July 9, 2018

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

July 9, 2018

Mr. Tom Nievez, Contract Planner
Land Use Services Department
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182
tom.nievez@lus.sbcounty.gov

Subject: **Notice of Preparation of a Draft Environmental Impact Report for the Daggett Solar Power Facility State Clearinghouse No. 2018041007**

Dear Mr. Nievez:

The California Department of Fish and Wildlife (CDFW) with this letter provides additional comments to the May 1, 2018 letter on the Notice of Preparation (NOP) of the Draft Environmental Impact Report (DEIR) for the Daggett Solar Power Facility (Project) (State Clearinghouse No. 2018041007) prepared by San Bernardino County (Lead Agency). Pursuant to The Guidelines for the Implementation of the California Environmental Quality Act (Cal. Code Regs., tit. 14, § 15000 et. seq.; hereafter CEQA Guidelines), CDFW has reviewed the Project and offers additional comments and recommendations on those activities involved in the Project that are within CDFW's area of expertise and germane to its statutory responsibilities, and/or which are required to be approved by CDFW (CEQA Guidelines, §§ 15086, 15096, and 15204).

3-15

CEQA Role

CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species (Fish & G. Code § 1802). CDFW holds the fish and wildlife resources in trust for the people of the state (Fish & G. Code § 711(a)). As a Trustee Agency, CDFW is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from Project activities (CEQA Guidelines, § 15386; Fish & G. Code, § 1802).

CDFW also acts as a Responsible Agency based on its regulatory authority regarding certain discretionary actions (CEQA Guidelines § 15381) such as the issuance of a Lake or Streambed Alteration Agreement (Fish & G. Code, §§ 1600 et seq.) and/or a California Endangered Species Act (CESA) Incidental Take Permit (ITP) for take of endangered, threatened, and/or candidate species (Fish & G. Code §§ 2050 et seq.).

Conserving California's Wildlife Since 1870

Project Location & Description

Daggett Solar Power 1 LLC, a subsidiary of NRG Renew, LLC, (Applicant) proposes six (6) Conditional Use Permits to construct and operate a solar energy generation and storage Project on ~3,500 acres east of Daggett, CA in San Bernardino County. The proposed Project would be a photovoltaic solar (PV) energy facility with associated on-site substations, inverters, fencing, roads and supervisory control and data acquisition (SCADA) system of up to 650 Megawatts (MW). The Project would also include up to 450 MW of energy storage and an overhead power line, referred to as a generation tie line (gen-tie line), which would connect the Project to its points of interconnection which are the existing Southern California Edison-owned Coolwater substations, located ~ 2 miles west of the Project site. The Project would utilize existing electrical transmission infrastructure adjacent to the existing Coolwater Generating Station to deliver renewable energy to the electric grid. The Project site is generally bounded by the town of Daggett ~0.5 mile to the west; the Mojave River, Yermo, and Interstate 15 to the north; Barstow Daggett Airport, Route 66, and Interstate 40 to the south; and Newberry Springs and Mojave Valley to the east.

Project Specific Comments and Recommendations

3-15
Cont'd

CDFW offers the following comments and recommendations in addition to the May 1, 2018 letter to assist San Bernardino County in adequately identifying and/or mitigating the Project's significant, or potentially significant, impact on biological resources. In addition to being the state trustee agency for the fish and wildlife resources of the state, CDFW is a party to the *City of Barstow v City of Adelanto* Judgment entered on January 10, 1996 (Judgment) and a landowner in the Baja Subarea (Camp Cady Wildlife Area). The proposed Project occurs within the adjudicated Mojave Basin and more specifically one of five subareas called the Baja Subarea. According to the Mojave Water Agency Watermaster, the Baja Subarea has been in continual overdraft since at least 1950 and the estimated groundwater storage has declined by over 400,000 acre-feet since the Judgment was finalized in 1996.

After reviewing the map provided in the NOP, and the letter sent to the County by the Mojave Basin Watermaster on June 12, 2018, CDFW notes that the proposed Project will require the acquisition of land that currently controls 15,271 acre-feet of adjudicated water production rights in the Daggett area of the Baja Subarea. CDFW is concerned that if those water production rights aren't acquired and retired, they may be transferred to other water users in the Baja Subarea and could result in increased pumping in the Baja Subarea.

More specifically, the transfer of water rights could result in additional negative impacts to CDFW's Camp Cady Wildlife Area. This could occur for a variety of reasons including the complicated faulting within the Baja Subarea, due to a fault zone known as the Calico-Newberry Fault. The Project is located west of the Calico-Newberry Fault. Camp Cady Wildlife Area is located east of that fault. If Project water rights in excess of those

required for solar power generation were transferred to users east of the Calico-Newberry Fault, increased water production would be shifted to that area. Such an increase in water production east of the Calico-Newberry Fault could cause further damage to riparian resources at Camp Cady Wildlife Area and environmental damage to the Newberry Springs area through increasing ground to water depths, causing more desert habitat being converted to wind-blown sand. CDFW respectfully requests that the Lead Agency examine these issues in the DEIR and consider mitigating alternatives such as requiring the purchase of adjudicated water rights with the land necessary for the Project and retiring the adjudicated water rights in excess of the amount required for solar power generation.

Supporting documents that will be useful to the Lead Agency regarding this issue include the 2013 Todd Engineering's report, the Mojave Water Agency Watermaster Annual Reports located on the Mojave Water Agency website, Mojave Water Agency Water Supply Memos, various MWA reports on Baja, the 2004 Camp Cady Habitat Water Supply Plan and USGS Mojave studies[1].

3-15
Cont'd

As stated in the MWA letter to the County, CDFW agrees that in order to better understand the potential impacts of the Project on the overdrafted groundwater basin, regardless of what mitigation may ultimately be adopted, the DEIR should include several studies of the groundwater basin in the Baja Subarea. The studies that should occur include all those referenced in the MWA letter, but specifically the following:

1. A groundwater well testing plan should be developed to identify local pumping impacts.

2. A groundwater investigation should be required to evaluate potential groundwater impacts if water production rights are not acquired on the real property identified

[1]*Conceptual Hydrogeologic Model and Assessment of Water Supply and Demand for Centro and Baja Management Subareas Mojave River Groundwater Basin, Todd Engineers with Kennedy/Jenks Consultants, July 2013; Appendix D - Hydrogeologic Investigation of Camp Cady Wildlife Area, Newberry Springs, California, January 2013;* https://www.mojavewater.org/files/balacentromodel.zip

All Annual Reports including the most recent Twenty-fourth Annual Report https://www.mojavewater.org/annual_report.html.

2012 Baja Water Supply Memos http://mojavewater.granicus.com/MetaViewer.php?view_id=2&clip_id=163&meta_id=12124) ; http://mojavewater.granicus.com/MetaViewer.php?view_id=2&clip_id=172&meta_id=12772) ;

Various MWA reports on Baja (https://www.mojavewater.org/document-library.html);

2004 Camp Cady Habitat Water Supply Plan (https://www.mojavewater.org/files/hwamplancadyfinal0704.pdf);

USGS Mojave studies (https://ca.water.usgs.gov/mojave/) ; (http://www.mojavewater.org/files/Appendix-A-Subject-Specific-Document-Timelines-for-the-Centro-and-Baja-Subareas.pdf)

by the Project and that production is then moved to other areas within the Baja Subarea by the property owners from whom the land is being acquired.

Thank you for the opportunity to provide comments on the NOP for the Daggett Solar Power Facility. Please contact Alisa Ellsworth, Senior Environmental Scientist, with questions regarding this letter and further coordination at (760) 872-1173 or Alisa.Ellsworth@wildlife.ca.gov.

3-15

Cont'd

Sincerely,

Scott Wilson
Environmental Program Manager
Inland Deserts Region

Cc: Tom McCarthy, Mojave Water Agency
State Clearinghouse, Sacramento
CORR

3 MOJAVE BASIN AREA WATERMASTER

3-1

Comment Summary:

This comment describes the project as proposed and the population, water usage, and hydrology of the Baja Subarea. The comment explains the responsibilities of the Mojave Basin Area Watermaster in enforcing the terms of the water rights adjudication judgment in City of Barstow, et al. v. City of Adelanto, et al., Case No. 208568 in the Riverside County Superior Court.

Response:

The comment does not address the analysis in the EIR and is noted for the record.

3-2

Comment Summary:

This comment restates the significance threshold used in the EIR for Impact 3.9-2 and claims that the EIR fails to address the impact and does not provide sufficient mitigation to alleviate the impact.

Response:

The comment does not provide evidence to support the claim that Impact 3.9-2 is insufficient. Please refer to Master Response 5 and the subsequent responses to individual comments provided below.

3-3

Comment Summary:

The commenter states that the EIR is inconsistent with Goal CO 6 of the County General Plan.

Response:

The comment does not provide evidence to support the claim that the project is inconsistent with the County's General Plan. Refer to the subsequent responses to individual comments below (Response 3-4 through 3-9). Refer to Master Response 5 for more information on this topic.

3-4

Comment Summary:

This comment cites a policy from the County General Plan that states that "the County Water Master will continue to monitor the County's adjudicated groundwater basins to ensure a balanced hydrological system in terms of withdrawal and replenishment of water from groundwater basins."

Response:

The project would develop a solar facility requiring substantially less water than the historical agricultural use of the project site, thereby promoting the General Plan policies cited by the comment. Although the unused water rights could potentially be transferred to private property owners on the other property within the Subarea, such a transfer is not proposed by the project. Furthermore, water rights are not controlled by the County, so water rights could be transferred to another property in the subarea regardless of implementation of the proposed project.

The proposed project would not impact the Watermaster's ability to manage and balance the hydrological system in terms of withdrawal and replenishment of water from the groundwater basin. The comment does not provide evidence to support the claim that the project is inconsistent with the General Plan policy described above. Refer to Master Response 5 for more information on this topic.

3-5

Comment Summary:

This comment requests that the County require mitigation for increased overdraft that could potentially occur in the eastern Baja area if the project is approved. The comment acknowledges that total water production in the Subarea could decrease if the project is approved, but the commenter requests that the County recognize the impact of increased water production on the hydrologic system in the eastern Baja subarea.

Response:

As stated in Section 3.9, Hydrology and Water Quality, of the EIR, the project will reduce the on-site water usage as compared to historical agricultural use by approximately 164,000 acre-feet over 20 years and acknowledges that remaining water rights would not be extinguished and could potentially be transferred to other property within the Subarea, including the eastern Baja area. However, the overdraft situation is an existing condition and is not caused nor will it be exacerbated by the project in a way that could not happen without the project. Beginning on page 3.9-17 of the DEIR, the EIR directly addresses the issues the commenter requests to be acknowledged:

> *During the EIR scoping period, the County received comments requesting analysis of what would happen if the current landowners shift or transfer their production rights to a different part of the Baja Subarea, specifically, on the east side of the Calico-Newberry Fault. The concern raised is that such a shift could accelerate the localized dropping of water levels east of the Calico-Newberry Fault and that this could cause adverse environmental impacts to riparian vegetation in the Cady Camp Wildlife Area … and could also adversely impact domestic wells of rural homeowners in the Newberry Springs area by increasing ground to water depths.*

The private landowners are allowed under the Stipulated Judgment to transfer their production rights within the Subarea, with or without the project. However, the landowners have indicated

they have no current plans to shift water production to the eastern Subarea, as suggested by the commenter, and the EIR explains the rational economic considerations suggesting that water productions transfers to the eastern Subarea are unlikely.

As explained on page 3.9-18 of the DEIR, CEQA does not require analysis of speculative future scenarios. However, to respond to public comments received, the DEIR (pages 3.9-18 through 3.9-26) includes extensive analysis of these potential impacts to provide the environmental information that was requested by the Watermaster. As described in the DEIR, the Watermaster has tools to address ongoing overdraft conditions in the eastern Baja area, including requesting the Riverside Superior Court to further reduce the Free Production Allowances if water levels decline in the eastern Subarea as the result of a transfer, but the County lacks the authority to ensure that the measures would be implemented or to require a party to retire its judicially allocated water production rights. Furthermore, the project has little impact on groundwater use and reduces water usage as compared to historical conditions on the project site, and therefore there is not a sufficient nexus for the County to require retirement of water rights otherwise not needed by the project as mitigation for project impacts. This comment provides no new information beyond the prior comments on the NOP, and analysis in the EIR meets and exceeds the requirements of CEQA in addressing the issues raised by the commenter. Refer to Master Response 5 for more information on this topic.

3-6

Comment Summary:

This comment references a CDFW letter received during the NOP scoping period. The commenter states that Afton Canyon, an Area of Environmental Concern (ACEC), would likely be impacted if water production from the west subarea is moved to the eastern subarea.

Response:

All comments received during the NOP review period are included in **Appendix A** of the EIR. The comments were categorized by issue and the most common environmental concerns were summarized in Section 1.0, Introduction; EIR Scope, Issues, Concerns of the EIR. In response to the CDFW's comments on the NOP, the EIR includes analysis of potential impacts to riparian vegetation and the Camp Cady Wildlife Area under various potential water usage scenarios at pages 3.9-20 to 3.9-26. Under all but one potential scenario, no adverse impacts to riparian habitat and the Camp Cady Wildlife Area are anticipated to occur. The EIR conservatively assumes impacts could be significant and avoidable under the speculative Scenario 3 because the County cannot compel the Watermaster and the Riverside Superior Court to take action to balance the groundwater in the unlikely event that the holders of the water rights choose to later transfer their water rights to the eastern Subarea, independent of the project. Afton Canyon ACEC is located over 20 miles to the northeast of the project site and the project would not have a significant impact on this area. No evidence has been submitted to support a conclusion that this area would be impacted.

This comment provides no new information beyond the prior comments provided by the CDFW during the NOP scoping period. The EIR meets and exceeds the requirements of CEQA in addressing the issues raised by the commenter. Refer to Master Response 5 for more information on this topic.

3-7

Comment Summary:

This comment recommends mitigation that would require the project applicant to procure and retire Base Annual Production (BAP) rights associated with the currently farmed rights so that water cannot be transferred to the eastern subarea.

Response:

Refer to Response 3-5 above. The project proposes a less water-intensive land use on the project site than current agricultural operations and does not require or propose a transfer of any remaining water rights. The County and the project applicant are responsible for mitigating impacts that may occur from project implementation, not impacts that may or may not occur based on subsequent, independent decisions made by third parties. There is not a sufficient nexus between the project and the potential for a lowering of the water table in the eastern Subarea for the County to require the project proponent to purchase and retire water rights owned by others that the project does not need and will not use. Refer to Master Response 5 for more information on this topic.

3-8

Comment Summary:

This comment states that the County cannot trust that the BAP would not be transferred to the eastern Subarea because BAP rights are freely transferrable. The commenter states that right could be purchased by new owners and exercised on properties yet to be identified.

Response:

The County may reasonably rely on the stated intentions of the current holders of the water rights as further evidence of the speculative nature of the impact of any water transfer, especially when their decisions are based on rational economic and practical considerations, as discussed on pages 3.9-23 and 3.9-24 of the EIR. These economic and practical considerations would not change if the property and the underlying water rights were sold. Furthermore, the proposed project is not responsible for a falling water table in the area and cannot be held responsible for a potential drop in the water table that could occur with or without the project. The project would significantly reduce demand for water usage at the site and is not anticipated to decrease the water table in the eastern Baja area, as described in the EIR. The water table in the eastern Subarea might decrease under the speculative scenario where the current owners of the water rights choose to shift water usage to the eastern Subarea (Scenario 3 on pages 3.9-22 to 3.9-24 of the DEIR), a scenario that could occur independent of the project. Even if Scenario 3 were to

occur, which is not known or considered likely, the Watermaster has available several tools to even out the water levels on either side of the Calico-Newberry fault, as described in the EIR.

Nonetheless, because the County has no authority over the basin or the water table, the EIR conservatively concludes this potential impact is significant and unavoidable. Refer to Response 3-7 and Master Response 5 for more information on this topic.

3-9

Comment Summary:

This comment states that a precedent for sequestration of water rights during solar development was set when the California Energy Commission required the Mojave Solar project (Abengoa Solar) to sequester a large portion of their water rights.

Response:

The Mojave Solar project did not set an applicable precedent for requiring the sequestration of water rights because that project applicant for the Mojave Solar project voluntarily proposed a water conservation plan that sequestered an amount of water rights in the Mojave Basin Area on an annual basis for the life of the project equal to the amount of water withdrawn by the project based on its use as a different type of solar technology (thermal vs. photovoltaic). For the Daggett Solar project, the commenter is proposing that the applicant purchase and retire existing water rights currently being used for agricultural production that are not needed and will not be used by the project. Refer to Master Response 5 for more information on this topic.

3-10

Comment Summary:

This comment states that the eastern Baja area contains an economically disadvantaged community that cannot afford to drill wells deeper if the water table is lowered, and that these users have stated that their wells are being affected by the falling water table in the area.

Response:

The project is not responsible for a falling water table in the area and its construction will have a net neutral impact on the overall water supplies in the basin because supplies in the basin are fully adjudicated and the project cannot result in greater production of water than is currently occurring. Furthermore, the project will decrease water usage at the site and is not anticipated to decrease the water table in the eastern Baja area, as described in the EIR. The water table in the eastern Subarea might decrease under the speculative scenario where the landowners choose to shift water usage to the eastern Subarea (Scenario 3 on pages 3.9-22 to 3.9-24 of the DEIR), which would occur independent of the project. Even if Scenario 3 were to occur, which is not known or considered likely, the Watermaster has available several tools to even out the water levels on either side of the Calico-Newberry fault, as described in the EIR. Refer to Master Response 5 and Responses 3-2 through 3-9 for more information on the project's water rights.

3-11

Comment Summary:

This comment refutes the impact designation of significant and unavoidable for Impact 3.9-2 because the commenter claims that procurement of BAP rights would mitigate potential impacts to the eastern Baja subarea.

Response:

Refer to Master Response 5 regarding water rights and Responses 3-2 through 3-10.

3-12

Comment Summary:

This is a concluding statement of the letter.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

3-13

Comment Summary:

This letter is the NOP letter received on June 12, 2018, from the Mojave Basin Area Watermaster. The entire letter is consolidated into this comment.

Response:

The specific comments included in the Watermaster's letter were considered and incorporated into preparation of the discussion included in Impact 3.9-2, beginning on page 3.9-15 of the EIR, and the Water Supply Assessment provided as **Appendix I-3** of the EIR. Refer to Master Response 5 regarding water rights and Responses 3-2 through 3-10.

3-14

Comment Summary:

This letter was received on September 24, 2018, from the Mojave Basin Area Watermaster subsequent to the NOP letter and therefore responses are included here. The entire letter is consolidated into this comment.

Response:

The specific comments included in the Watermaster's letter were considered and incorporated into preparation of the discussion included in Impact 3.9-2, beginning on page 3.9-15 of the EIR, and the Water Supply Assessment provided as **Appendix I-3** of the EIR.

3-15

Comment Summary:

This letter is the NOP letter received on July 9, 2018, from the CDFW. The entire letter is consolidated into this comment.

Response:

The specific comments included in the CDFW's letter relating to the Watermaster's June 12, 2018, letter were considered and incorporated into preparation of the discussion included in Impact 3.9-2, beginning on page 3.9-15 of the EIR, and the Water Supply Assessment provided as **Appendix I-3** of the EIR.

Mojave Desert Air Quality Management District
Brad Poiriez, *Executive Director*
14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 • Fax 760.245.2022
www.MDAQMD.ca.gov • @MDAQMD

LAND USE SERVICES DEPARTMENT
MAR 21 2019
COUNTY OF SAN BERNARDINO

March 20, 2019

County of San Bernardino
Land Use Services Department
Tom Nievez, Contract Planner
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415

Subject: Notice of Availability of a Draft Environmental Impact Report for the Daggett Solar Power Facility Project

Dear Mr. Nievez:

4-1 The Mojave Desert Air Quality Management District (District) has received the request for comments for the Notice of Availability of a Draft Environmental Impact Report for the Daggett Solar Power Facility Project. This project proposes six (6) Conditional Use permits to construct and operate a photovoltaic solar energy generation and storage facility with associated on-site substations, inverters, fencing, roads, and supervisory control and data acquisition system of up to 650 Megawatts (MW), as well as up to 450 MW of energy storage capacity and overhead power line, approximately 3,500 acres east of Daggett, CA in unincorporated San Bernardino County.

4-2 The District has reviewed the Notice of Availability and concurs with the scope of analysis proposed in the Section 3.3 – Air Quality as well as the Mitigation Measures addressing potential air quality issues. MDAQMD Designations and Classifications are available at http://mdaqmd.ca.gov/home/showdocument?id=538. The District also recommends that the following dust mitigation measures be required for the construction of the solar photovoltaic project (enforceable by the District AND by the land use agency):

- Prepare and submit to the MDAQMD, prior to commencing earth-moving activity, a dust control plan that describes all applicable dust control measures that will be implemented at the project;
- The following signage shall be erected not later than the commencement of construction: A minimum 48-inch high by 96-inch wide sign containing the following shall be located within 50 feet of each project site entrance, meeting the specified minimum text height, black text on white background, on one inch A/C laminated plywood board, with the lower edge between six and seven feet above grade, with the contact name of a responsible official for the site and a local or toll-free number that is accessible 24 hours per day:

"[Site Name] {four inch text}
[Project Name/Project Number] {four inch text}
IF YOU SEE DUST COMING FROM {four inch text}
THIS PROJECT CALL: {four inch text}
[Contact Name], PHONE NUMBER XXX-XXXX {six inch text}
If you do not receive a response, Please Call {three inch text}
The MDAQMD at 1-800-635-4617 {three inch text}"

4-2

Cont'd

- Use a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes to minimize visible fugitive dust emissions. For projects with exposed sand or fines deposits (and for projects that expose such soils through earthmoving), chemical stabilization or covering with a stabilizing layer of gravel will be required to eliminate visible dust/sand from sand/fines deposits.

- All perimeter fencing shall be wind fencing or the equivalent, to a minimum of four feet of height or the top of all perimeter fencing. The owner/operator shall maintain the wind fencing as needed to keep it intact and remove windblown dropout. This wind fencing requirement may be superseded by local ordinance, rule or project-specific biological mitigation prohibiting wind fencing.

- All maintenance and access vehicular roads and parking areas shall be stabilized with chemical, gravel or asphaltic pavement sufficient to eliminate visible fugitive dust from vehicular travel and wind erosion. Take actions to prevent project-related trackout onto paved surfaces, and clean any project-related trackout within 24 hours. All other earthen surfaces within the project area shall be stabilized by natural or irrigated vegetation, compaction, chemical or other means sufficient to prohibit visible fugitive dust from wind erosion.

4-3

The District supports the development of renewable energy sources; such development is expected to produce cumulative and regional environmental benefits.

Thank you for the opportunity to review this planning document. If you have any questions regarding this letter, please contact me at (760) 245-1661, extension 6726, or Kevin Hendrawan at extension 4007.

Sincerely,

Alan J. De Salvio
Deputy Director – Mojave Desert Operations

AJD/kh

Notice of Availability of a Draft EIR for the Daggett Solar Power Facility Project

4 MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT

4-1

Comment Summary:

This comment provides an introductory discussion and description of the project as proposed.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

4-2

Comment Summary:

This comment provides suggested mitigation measures to be included in the EIR.

Response:

The recommended mitigation measures are already included in mitigation measure **AIR-1**. Therefore, revisions to the air quality mitigation measures or EIR is not required. Refer to Impact 3.3-1 of the EIR. The full text of **AIR-1** is provided in Master Response 1.

4-3

Comment Summary:

This comment states that the District supports renewable energy development. This statement provides contact information and summary of the letter.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

Nievez, Tom

From: Tribal Historic Preservation Office <thpo@morongo-nsn.gov>
Sent: Monday, April 29, 2019 2:06 PM
To: Nievez, Tom
Subject: Daggett Solar Power Project

Hello Tom,

Thank you for the continued opportunity to consult and participate in the review process for this project.

5-1 This project is within the ancestral territory of the Morongo people and in a culturally sensitive area. Particularly, there is a very high sensitivity for human remains.

Our office requests the presence of a Morongo tribal monitor during all ground-disturbing work and whenever an archaeologist is present on the work site.

Thank you.

Sincerely,

Travis Armstrong
Tribal Historic Preservation Officer
Morongo Band of Mission Indians
951-755-5259
Email: thpo@morongo-nsn.gov



1

5 MORONGO BAND OF MISSION INDIANS TRIBAL HISTORIC PRESERVATION OFFICE

5-1

Comment Summary:

This comment requests that a Morongo tribal monitor be on-site during all ground-disturbing activities and whenever an archaeologist is present on the work site.

Response:

The County has complied with the tribal consultation requirements codified in CEQA per AB 52 and will continue to coordinate with the tribe and applicant regarding tribal monitoring. As indicated on page 3.5-21 of the Draft EIR, consultation has occurred with both the San Manuel and Morongo Bands of Mission Indians and is ongoing. The Draft EIR incorporates mitigation measures requested by the San Manuel Band of Mission Indians during consultation and determines that impacts to tribal cultural resources would be less than significant with implementation of mitigation measures detailed in the Draft EIR, the County has added an additional measure at the request of the Morongo Band of Mission Indians. Specifically, the County will require the presense of a tribal monitor on-site as described below:

CUL-9 Prior to ground-disturbing activities, the project proponent shall provide evidence that a Native American tribal monitor from the Morongo Band of Mission Indians has been retained to monitor ground disturbing excavation activities.

Newberry Community Services District
Established 1958

Tom.Nievez@lus.sbcounty.gov

County of San Bernardino
Land Use Services Department
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Phone: (909) 387-5036
Tom.Nievez@lus.sbcounty.gov

Dear Mr. Nievez,

6-1 The Newberry Community Services District has the following powers: Fire Protection, Parks and Recreation, Streetlights, and Water. Although the community of Newberry Springs is the most affected community of the Daggett Solar Power Facility it is not significantly regarded in this EIR. As Elected representatives of the

6-2 Newberry Springs Community, the Newberry Community Services District Board of Directors expresses our concern that the Daggett Solar Power Facility Draft EIR contains numerous significant errors and defects that will cause significant adverse environmental impacts. The CSD Board submits that the Daggett Solar Power Facility project ("the project") must be halted absent the addition of numerous specific, substantial and enforceable changes to the project. These significant defects and errors include but are not limited to the following:

1. Section 3.14 Effects found not to be significant; Population and Housing; Fire Protection

6-3 It says, "*Fire protection services for the project area are provided by the Daggett Fire Department. The department's fire station is approximately 1.5 miles to the west of the project site at 33702 Second Street in Daggett. Additionally, the Barstow Fire Protection District station is approximately 12 miles west of the project site at 861 Barstow Road in Barstow and would be available to back up the Daggett Fire Department if necessary.*" By ignoring Newberry Springs, this assessment is incomplete, therefore false and should be corrected, for the following reason. **Phase 3 of this project is totally in the community of Newberry Springs and served by the Newberry Springs Volunteer Fire Dept., not the Daggett Volunteer Fire Dept.** The Newberry Springs Volunteer Fire Dept. is approximately 6 miles east of Mineola road and Silver Valley Rd.

6-4 This brings up a significant question. If the Public Safety Services Impact Fees are paid as if in the Daggett CSD area, excluding Newberry Springs, what is the process to assure the Newberry Springs CSD receives its fair share?

2. Section 3.1 - AESTHETICS AND VISUAL RESOURCES

6-5 The project's conclusions that the project would result in a "moderately low change to views from Interstate 40 is faulty because the selection of key observation points (KOPs) is faulty. Specifically, the major viewshed impact is on thousands of tourists and motorists traversing the nearby Interstate 40 each day. Their view is elevated with respect to the project site and affords an excellent view of the project site. Only one KOP (KOP2) has been chosen to represent this impact. The project's conclusion that "The project would result in a moderately low change to views from I-40" is faulty because KOP 2 was selected to be the "on ramp" to Interstate 40 rather than to be the view from Interstate 40 itself. The on ramp is substantially lower than Interstate 40 itself and fails to properly reflect the much wider and longer view that tourists and motorists have from the roadway of Interstate 40.

3. Section 3.3 - AIR QUALITY

6-6

6-6 Cont'd Airborne dust levels from proposed site grading must be mitigated via an effective "dust control plan". Without an effective dust control plan and mitigation process, including effective site maintenance and plan enforcement, the dust raised by breaking the topsoil layer and by the subsequent grading raises potentially significant human health issues and potentially significant aircraft flight safety issues.

4. Section 3.4 - BIOLOGICAL RESOURCES

6-7 Desert tortoises which have been listed as "endangered" by the U.S. Fish and Wildlife Service since 1990 inhabit both the proposed project area and the surrounding area. The desert tortoise has been listed as "threatened" by the US FWS since 1990. The project's claim that the proposed site has a low potential for desert tortoise occurrence is false because of area roadways is incorrect. Tortoises have been observed in and on roadways in the area. The presence of an occasional roadway does not support the project's claim that desert tortoises do not exist in within the project area. The project's claim that no tortoises were detected during one survey in 2018 also does not support the claim that desert tortoises do not exist within the project area.

6-8 In addition, the project area is also desert kit fox habitat. The DEIR reports that the kit fox had been observed on the project site. The state of California has been petitioned to list the desert kit fox as endangered due primarily to habitat degradation and habitat loss. Specifically, modification or destruction of habitat cited as posing the primary threat to the survival of the desert kit fox. The project's proposal to reduce the impact to desert kit fox by educating on-site workers to "avoid the species" would be laughable if it weren't so tragic.

5. Section 3.6 - GEOLOGY AND SOILS

6-9 The project's assertion that following the requirements of the California Building Code (CBC) are sufficient to mitigate the occurrence of airborne dust within a known desert "wind transport corridor" is unconvincing and unsupported. Construction of the project will create a significant and enduring wind-borne dust hazard to area residents. In addition, the project's dust mitigation measures are vague and unconvincing.

6. Section 3.8 - HAZARDS AND HAZARDOUS MATERIALS

6-10 The project's conclusion that project hazards are "less than significant" in unconvincing. The project proposes 450 megawatts of on-site battery storage encompassing a total area of 16 acres and (likely) using highly energetic lithium-ion battery technology. Lithium ion batteries are well known as sources of high intensity fires as evidenced by recent news items describing Boeing aircraft 787 lithium battery fires and Tesla motorcar lithium battery fires. The project's conclusion that any such fires could be automatically extinguished is highly questionable. Further, local rural fire departments are not equipped to extinguish such fires.

7. Section 3.9 - HYDROLOGY AND WATER QUALITY

6-11 The project acknowledges that it's water use will have a "significant and unavoidable" negative impact on local ground water supplies and that "no feasible mitigation measures are available" to predict the magnitude of this impacts. Local groundwater is already being extracted faster than it is being or can be replenished. This fact alone is sufficient to justify termination of this project.

8. AIRCRAFT AND COMMERCIAL TRANSPORTATION CONSERNS

(a). Aircraft Traffic

Section 3.12 - TRANSPORTATION AND TRAFFIC

6-12 Construction of the project would result in multiple aircraft and airport safety issues, including but not limited to the following:

6-13 a. The glint/glare analysis is lacking.

6-14 b. The DEIR ignores impacts to aircraft in the airport traffic pattern.

6-15 c. Windblown dust will obscure pilot views on takeoff, while in the pattern and when landing.

6-16 d. Windblown dust will accelerate aircraft engine wear and may even cause engine failure on takeoff.

e. Windblown dust will negatively impact both U.S. Army helicopter operations general aviation flight operations.

6-17 (b). Commercial / Construction Traffic

SECTION 3.12 – TRANSPORTATION AND TRAFFIC
Construction of the project would result in multiple traffic and roadway concerns, including but not limited to the following:
a. The increase of commercial truck traffic that is not normal for the area.

6-18 b. The increased truck and construction vehicle traffic on local roadways will lead to early repairs which is not addressed in the DIER.

6-19 c. A roadway restoration plan, including funding, is not addressed in the DIER to mitigate the destruction or lifespan depletion of local roadway system

6-20 9. County will lose tax dollars as value of surrounding homes decrease. Increase in road maintenance. Few if any local jobs created; 25+/- jobs lost. No increase in property tax on Project land. Losses of view scape as arrays proposed are 15-20 feet. Since Newberry CSD depends on Property Taxes, we could see a decline in our income which would affect our ability to provide services to our community.

6-21 10. Residents will be forced to sell their properties due to plummeting values, negative effects to the localized property values, health issues-concerns. All of this as a result of being subjected to incurable, external obsolescence directly attributed to this project's action-activities.

6-22 Finally, the project substantially and repeatedly violates many sections of San Bernardino County Solar Ordinance #4213

For all the above reasons, absent the many needed significant mitigation and enforcement measures, the Newberry CSD urges that this project be terminated.

6-23 Respectfully, 4/20/19
Robert Springer
President, Newberry CSD Board of Directors

6 NEWBERRY COMMUNITY SERVICES DISTRICT

6-1

Comment Summary:

This comment provides an introductory discussion on the role of the Newberry Community Services District (CSD).

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR. This information is noted for the record.

6-2

Comment Summary:

This comment provides an introductory discussion on the role of the Newberry CSD. This comment states that the "project must be halted absent addition of numerous specific, substantial and enforceable changes to the project." The comment states that the DEIR contains numerous significant errors and defects that will cause significant adverse environmental impacts.

Response:

Comment noted for the record. The comment does not provide specifics supporting the assertion that the EIR is insufficient and therefore no further response is required.

6-3

Comment Summary:

This comment cites text from the EIR that states fire services would be provided by the Daggett Fire Department. The commenter states that the EIR is incorrect because Phase 3 of the project is located in Newbery Springs and would be served by the Newberry Springs Fire Department.

Response:

Comment noted and incorporated into the record. Section 3.14, Effects Found Not to Be Significant, of the EIR, describe fire protection services for the project site and in the area.

The majority of the project area will be served by the Daggett Fire Department. Phase 3 located in the eastern-most portion of the project site will be served by the Newberry Springs Fire Department. The County's Development Code Chapter 84.29.040, Renewable Energy Generation Facilities, Section 4(d), Solar Energy Development Standards, requires the project proponent to pay a fee of $157 per acre annually for impacts to public safety services. The County will manage the receipt of these fees as appropriate to ensure public safety service impacts are mitigated and that safety services are adequate and available to the project. This is anticipated to involve both

the Daggett and Newberry Springs Volunteer Fire Departments for the portion of the project constructed in each specific district.

The applicant has met with the fire departments to review project plans, and will continue to meet with the departments to keep them apprised of project status. Prior to construction, the project proponent will prepare a site-specific emergency and fire response plan in consultation with the appropriate local fire departments responsible for providing safety services to the project as required by existing state regulations (HSC§ 25504(b); 19 CCR §2731; 22 CCR §66262.34(a)(4)). These existing regulations require the project proponent to complete a Hazardous Materials Business Plan, and Emergency Response Plan and conduct training once the project is operational. This plan will address emergency and fire response methods and equipment for the project.

Prior to operations, the project proponent will meet with the appropriate local fire departments to provide a tour of the site, including review of access points and major and project components; review the site's emergency response plan, which will include Material Safety Data Sheets (MSDS sheets) as appropriate; and educate and train first responders with regard to any specific safety concerns related to the use of battery storage components and the safety systems in place.

6-4

Comment Summary:

The commenter asks whether the Newberry Springs CSD would receive public services impact fees.

Response:

The County's Development Code Chapter 84.29.040, Renewable Energy Generation Facilities, Section 4(d), Solar Energy Development Standards, requires the project proponent to pay a fee of $157 per acre annually for impacts to public safety services. The County will manage the receipt of these fees as appropriate to ensure public safety service impacts are mitigated and that safety services are adequate and available to the project. This is anticipated to involve both the Daggett and Newberry Springs Volunteer Fire Departments for the portion of the project constructed in each specific district.

Prior to construction, the project proponent will prepare a site-specific emergency and fire response plan in consultation with the appropriate local fire departments responsible for providing safety services to the project. This plan will address emergency and fire response methods for the project in compliance with existing state regulations (see Response to 6-3).

6-5

Comment Summary:

In summary, this comment states that KOP 2 is faulty because the viewpoint that is supposed to represent I-40 is actually taken from the I-40 on-ramp. The commenter states that the on-ramp is "substantially lower than I-40 itself and fails to properly reflect the much wider and longer view."

Response:

In response to the comment, an additional visual simulation is provided, showing the view from a higher elevation near the original KOP 2. Refer to Master Response 7.

6-6

Comment Summary:

In summary, the comment states that dust levels from site grading must be mitigated via an effective dust control plan. The commenter states that without a plan, the project would potentially cause significant health issues and potentially significant aircraft safety issues.

Response:

Section 3.3, Air Quality, Impact 3.3-3, of the EIR, describes the project's air quality, including dust impacts. The DEIR describes mitigation measures that the project application would be required by the County to implement to minimize and control dust levels. Mitigation measure **AIR-1** requires the applicant to implement an Air Quality Construction Management Plan that describes fugitive dust control measures that must be implemented during the project construction phase. **AIR-3** requires the applicant to develop a Dust Control Plan to address impacts from project operation. Similar to mitigation measure **AIR-1**, mitigation measure **AIR-3** includes measures such as the installation of wind fencing (see Exhibit 3.3-1, Wind Fence Locations) and surface treatments for areas where natural vegetation has been removed and left potentially unstable, as well as vehicle speed limits which would reduce air quality impacts during project operations.

The potential air quality impacts of the project are discussed in Section 3.3, Air Quality, of the EIR. Potential health issues associated with the project's air quality impacts are specifically discussed in the DEIR on pages 3.3-21 to 3.3-25. As discussed in detail, the project will exceed MDAQMD standards on a temporary basis during days of peak emissions in the construction phase even with the implementation of **AIR-1** and **AIR-3**. During the operational phase, the project will result in air quality benefits because, as a renewable energy project, it creates electricity without burning fossil fuel. The health impacts of the project's temporary construction air emissions are described both qualitatively and quantitatively in the EIR and in Master Response 3 above. With respect to dust impacts and their potential to have an effect on aircraft safety, refer to Response 6-14.

6-7

Comment Summary:

This comment states that the claim in the EIR that desert tortoise has a low potential to occur on-site is false. The commenter states that the presence of an occasional roadway does not preclude a desert tortoise from being present on-site. Tortoises have been observed in and on roadways in the area. The comment states that just because tortoises were not identified during one survey in 2018 doesn't mean they are never in the project area.

Response:

The project applicant consulted with the USFWS and the CDFW regarding an appropriate survey approach for a desert tortoise presence/absence survey. The methodology of the April-May 2018 is discussed in Section 3.4, Biological Resources, of the EIR, and the complete report documenting the surveys and results is in **Appendix E-3** of the EIR. No live tortoises or definitive sign of desert tortoises were found. The only potential sign noted was two Class 4 burrows; both had flat floors typical of those used by desert tortoises but no other indication that they had been used by tortoises.

As discussed in Section 4 of the Desert Tortoise Pre-Project Survey Report provided as **Appendix E-3** of the EIR, in addition to the focused surveys conducted in April and May 2018, biologists spent more than 102 person-days (Section 4, page 12 **Appendix E-3**) in the project area conducting other surveys and did not find any desert tortoises or signs of their presence. As also stated in the survey, the site is isolated from known occupied desert tortoise habitat by Interstate 40 to the south and Interstate 15 to the north. No recent, documented, and publicly available desert tortoise observations have been made in the fragmented area left between these highways.

The comment is correct in that the survey results do not mean that it is impossible for desert tortoise to be present on the project site. Although no tortoise was observed during the protocol surveys, since suitable habitat is present, a mitigation measure has been included in the DEIR to minimize impacts to desert tortoise; as discussed in Impact 3.4-1 in Section 3.4, Biological Resources of the EIR, implementation of mitigation measure **BIO-1** would require a preconstruction clearance survey to confirm that no desert tortoise is present on-site prior to construction.

Further, mitigation measure **BIO-1** includes worker awareness training that will address the importance of avoiding desert tortoise and the consequences of noncompliance. Mitigation measure **BIO-1** also describes specific activities that would be implemented to prevent harm to or harassment of a desert tortoise in the unlikely event that an individual is identified on the project site, as supported by survey data.

6-8

The desert kit fox habitat has been observed on the site and the state of California has been petitioned to list this species as endangered. Modification of habitat is a primary threat to the survival of the desert kit fox. Educating on-site workers will not adequately reduce impacts to this species.

Response:

The comment is correct that desert kit fox were observed on the project site as described in Section 3.4, Biological Resources, and **Appendix E-2** of the EIR. Since desert kit fox have the potential to be present on the project site, several measures to minimize impacts to this species are described in mitigation measure **BIO-3**. This measure, a Desert Kit Fox Monitoring and

Mitigation Plan, will be prepared and submitted to CDFW a minimum of 60 days prior to the start of ground-disturbing activities. The Desert Kit Fox Mitigation and Monitoring Plan will include preconstruction survey methods and will describe preconstruction and construction-phase biological monitoring. In addition to **BIO-3**, workers will be educated about how to avoid impacts to this species by learning to identify it and avoid individuals.

6-9

Comment Summary:

The comment states that following the requirements of the California Building Code (CBC) is insufficient in mitigating the occurrence of airborne dust within a known "wind transportation corridor." The commenter states that construction of the project would significantly impact residents from wind-borne dust.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts. Refer to Master Response 1 for additional information on how the project would be required to reduce fugitive dust. Refer also to Master Response 8 on Windblown Materials.

6-10

Comment Summary:

The comment states that the lithium ion batteries used in the on-site battery storage system are known to cause high intensity fires. The commenter states that the local rural fire department is not equipped to extinguish such a fire.

Response:

See Response to Comment 6-3. The batteries currently proposed for the project will use lithium ion cell technology. As stated in Impact 3.8-7 of the EIR, the batteries would be subject to compliance with existing federal, state, and local regulations for health and safety, including the 2016 California Fire Code. The applicant would select batteries or Energy Storage System (ESS) providers that comply with the application-specific codes, standards, and regulations for the siting, construction, and operation of lithium-ion stationary ESS. The existing regulations control the conditions under which the energy storage (battery) component can operate, and because the site contains only low noncontiguous scrub, no significant fire hazard is foreseen.

The project will include current best practices for fire safety. Also stated in Impact 3.8-7, the battery storage system would contain a safety system that would be triggered automatically

when the system senses imminent fire danger. The fire safety system inside each enclosure will shut down the unit if any hazard indicators are detected. If the safety system detects a potential issue as detected by the smoke and temperature sensors, the batteries will be automatically de-energized by opening the electrical contacts, and the heating, ventilation and air conditioning (HVAC) units and fans are shut off. The enclosure wall is designed to contain the fire for at least 2 hours, providing sufficient time for the fire to die down and allow the system to cool. Fire responders are trained to monitor fire from a safe distance using infrared cameras until temperature of the affected enclosure cools to ambient temperature.

See Response to Comment 6-3. The Emergency Response Plan is used to train local emergency response personnel during development and operations of the facility. The plan will be completed in accordance with existing state regulations (HSC§ 25504(b); 19 CCR §2731; 22 CCR §66262.34(a)(4)). The contents of the Emergency Response Plan would comply with existing state regulations and include the following components and involve training for the local fire responders:

- Developed in consultation with Fire Dept and BESS Supplier
- Defined roles and responsibilities
- Potential emergency scenarios including fire
- On-site training of fire personnel and on-site project staff
- Training for local first responders

6-11

Comment Summary:

The comment states that the project should be terminated since the project would have significant and unavoidable negative impacts to the local groundwater supply.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Indirect impacts to the groundwater basin are found to be significant and unavoidable due to the (unlikely and speculative) potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin.

6-12

Comment Summary:

This comment states that the glint/glare analysis is lacking.

Response:

Refer to Master Response 6 for more information on the project's glint and glare analysis included in the EIR.

6-13

Comment Summary:

This comment states that the EIR ignores impacts to aircraft in the airport traffic pattern.

Response:

Refer to Response 6-14 below regarding the project compatibility with airport policies and operations.

6-14

Comment Summary:

This comment states that windblown dust would obscure the vision of pilots at the airport during takeoff, while in pattern, and landing.

Response:

Please see Impact 3.3-3 of the EIR and Master Response 1 regarding air quality impacts and mitigation measures. The project applicant would implement mitigation measure **AIR-3** which requires the applicant to develop a Dust Control Plan to address impacts from project operation. Similar to mitigation measure **AIR-1**, mitigation measure **AIR-3** includes measures such as the installation of wind fencing (see Exhibit 3.3-1, Wind Fence Locations) and surface treatments for areas where natural vegetation has been removed and soil may be unstable, as well as vehicle speed limits which would reduce air quality impacts during project operations. Contrary to the commenter's assertion, implementation of these measures would reduce impacts related to wind-transported materials to less than significant and would not exacerbate the existing aeolian dust process, which pilots using the Barstow-Daggett Airport already experience.

6-15

Comment Summary:

This comment states that dust would accelerate engine wear and may result in engine failure.

Response:

In order to protect aircraft engines, pilots typically avoid departing or landing during dusty conditions. By FAA regulation, pilots are required to analyze the weather prior to any flight operation and make appropriate decisions regarding the safety of flight. Furthermore, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR

from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts. Refer to Master Responses 1 and 8 for a complete response regarding this topic.

6-17

Comment Summary:

This comment states that windblown dust would negatively impact U.S. Army helicopter operations and general aviation.

Response:

Refer to Response 6-14 above. Contrary to the commenter's assertion, there is no evidence that the project would negatively impact U.S. Army helicopter operations. Appendix H-3 of the DEIR provides documentation that operation of the project will not significantly impact existing conditions.

6-18

Comment Summary:

This comment states that the project would increase commercial traffic in the area.

Response:

As stated in Impact 3.12-1, construction vehicles would access the project site from I-40 and I-15. Primary access points to the project site are shown on Exhibit 3.12-2, Preliminary Access Plan, and include Santa Fe Street, Hidden Springs Road, Minneola Road, Valley Center Road and Silver Valley Road. As shown in Table 3.12-1 of the EIR, all area roadways operate at level of service (LOS) A. Construction traffic generated by the project would occur primarily as a result of construction workers traveling to and from the project's access points. Traffic would also be generated by heavy equipment. However, once the vehicles are delivered to the site, they will generally stay on the site and will not generate daily trips. Vehicle traffic would also be generated by construction material deliveries.

During construction, the project would generate a maximum of 500 additional round trips per day from construction workers traveling to and from the project's access points. The modeled construction phasing and operation phasing and ADT counts are included in **Appendix K**. Construction vehicles would access the project site from I-40 and I-15. During construction, materials would be placed within the project boundaries adjacent to the then-current phase of construction. To prevent theft and vandalism, materials would be secured within fenced areas. Storage containers may be used to house tools and other construction equipment. In addition, security guards would regularly monitor the site.

Construction traffic generated by the project has the potential to cause temporary impacts to transportation and traffic in the area. Implementation of mitigation measure **TRA-1** would reduce construction-related traffic impacts because it requires the project applicant to receive a County

approved Construction Traffic Control Plan prior to commencement of construction activities. Therefore, impacts would be less than significant with mitigation.

6-18

Comment Summary:

This comment states that the EIR does not contain information on the damage and cost to repair local roadways as a result of additional trucks on the roads during construction.

Response:

An EIR is not required to evaluate long- and short-term economic effects of the project on the local roadway system unless they lead to physical changes that could result in significant adverse impacts on the environment. Any damage to the surface of local roadways is not anticipated to result in significant environmental impact. In addition, the applicant will be required by the County to repair project-related County-road damage. This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues.

6-19

Comment Summary:

This comment states that the EIR does not contain a roadway restoration plan, including funding, to mitigate the destruction or lifespan depletion of the local roadway system.

Response:

The project's impacts to roads during construction and operation are discussed in Section 3.12, Transportation and Traffic, of the EIR. To minimize the identified impacts, the applicant is required to work with the County to complete a Construction Traffic Control Plan as outlined in mitigation measure **TRA-1**. The operations impacts to the roadway network are identified as less than significant since there would be approximately eight round trips a day over and above the existing traffic. The County will require the applicant to repair damage to County public roads as required by the development code.

6-20

Comment Summary:

This comment lists potential economic impacts that could occur as a result of project implementation.

Response:

An EIR is not required to evaluate long- and short-term economic effects of the project on the economic welfare of the County's residents under CEQA. This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues.

6-21

Comment Summary:

This comment states that residents would be forced to sell their properties due to impacts from the project.

Response:

Refer to Response 6-20 above regarding economic impacts from the project.

6-22

Comment Summary:

This comment states that the project violates the San Bernardino County Solar Ordinance #4213.

Response:

As stated in Section 3.10, Land Use and Planning of the EIR, since the project application was accepted as complete prior to preparation and adoption of the most recent amendments to the Renewable Energy and Conservation Element (RECE), the County has determined the project is not subject to conformance with the element's most recently adopted land use policies. The EIR analyzes the project's compliance with applicable local policies at the time of project application submittal and contains evidence that it does comply.

Regardless, the project is consistent with many of the policies contained in the RECE, including that it is located primarily on disturbed land, adjacent to existing utility infrastructure, near existing industrial development including an airport and existing power plants, and is not within an adopted Community Plan area. Tables 3.10-2 and 3.10-3 in the DEIR summarize the project's consistency with these policies.

6-23

Comment Summary:

This comment is the concluding statement of the letter and the commenter concludes by stating that the project should be terminated.

Response:

This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues.

NEWBERRY SPRINGS FIRE DEPARTMENT

PO BOX 206
NEWBERRY SPRINGS, CA. 92365
760-25-3016

Tom.Nievez@lus.sbcounty.gov

RECEIVED
2019 MAY -8 PM 2:47
LAND USE SERVICES
ADMINISTRATION

County of San Bernardino
Land Use Services Department
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Phone: (909) 387-5036
Tom.Nievez@lus.sbcounty.gov

Dear Mr. Nievez,

7-1 Newberry Springs Fire department (the "department") is operated under the authority given by the Newberry Community Services District. Referencing the EIR provided for the proposed solar project in Daggett & Newberry Springs the following is identified.

1. Training and safety concerns regarding Lithium batteries handling, use, storage, and hazardous materials program geared towards fire department responsibility and incident mitigation.

7-2 2. Safety and emergency response measure and plans for onsite fire training and emergency response.

7-3 3. Funding available for any specific equipment/training requirements

7-4 Granted these are narrow questions but the complexity of each need to be addressed and identified through plans, planning, and training if the project were to move forward.

7-5 Keep in mind, the jurisdictions of Daggett, Newberry Springs, & Yermo are all volunteer agencies. The requirement for support and training for each is essential and critical to support and emergency event in this project from beginning to completion. These agencies are not able to procure or obtain budget funding for equipment and training that this project may demand.

7-6 Please specifically add Newberry Springs Fire Department to any and all correspondence, requests, invites, announcements, and media interests for this project. Newberry Springs in general is vaguely mentioned in the EIR and the impact and implementation of this project directly (phase 3) and indirectly (phase 1,2) has an impact on our fire district and local government agencies.

Respectfully,

Daphne Lanier
Fire Chief Newberry Springs
DLLANIER@gmail.com

7 NEWBERRY SPRINGS FIRE DISTRICT

7-1

Comment Summary:

This comment is the introduction of the letter. This comment also states that the Newberry Fire District (department) has concerns regarding the handing, use, storage, and hazardous materials program related to lithium batteries for the project and how those issues impact the department.

Response:

Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire District.

7-2

Comment Summary:

This comment states that the department would like more information regarding the safety and emergency response measures and plans for on-site fire training and emergency response.

Response:

Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire District.

7-3

Comment Summary:

This comment states that the department would like to know if there is funding available for any specific equipment/training that would be required for the project.

Response:

Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire District.

7-4

Comment Summary:

This comment states that these questions are narrow, but each issue needs to be identified through plans, planning, and training.

Response:

Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire District.

7-5

Comment Summary:

This comment states that the fire departments for Daggett, Newberry Springs, and Yermo are all volunteer fire departments. The comment states that the department may not be able to procure funding for equipment and training that the proposed project may demand.

Response:

Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire District.

7-6

Comment Summary:

This comment states that the Newberry Springs Fire Department requests to be included in all correspondence, requests, invites and announcements, and media interests for the project. This comment states that Newberry Springs is vaguely mentioned in the EIR even though Phase 3 is directly in the fire district and Phases 1 and 2 indirectly impact the department.

Response:

The department will be notified in accordance to CEQA requirements. Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire District.

Barstow Airport Aviation Safety Committee (BAASC)
P.O. Box 117 Daggett, CA. 92327

April 29, 2019
County of San Bernardino, Land Use Services Department
Tom Nievez, Contract Planner
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415 Tom.Nievez@lus.sbcounty.gov
RE: Daggett Solar Power Facility, Draft EIR (SCH No. 2018041007)

Dear Mr. Nievez,

We are pleased to submit our comments and concerns regarding the proposed Daggett Solar Power Project DEIR.

8-1 We are very concerned that Addendum H-3 (Airport Safety and Compatibility Technical Memorandum) of the DEIR has vastly understated impacts to aircraft safety and to safe airport operation. We believe that construction of the project, as proposed, would result in the following very serious and unaddressed safety issues for both the general aviation community and for the military community which uses the airport heavily for helicopter flight training.

8-2 1. **Reflections/Glare/Glint** - The DEIR glare/glint analysis is defective in that it only addresses glare from the sun affecting aircraft making straight-in approaches to land. In actuality, many landings are not "straight-in" approaches but are "pattern" landings. A pattern landing requires an aircraft to "fly the pattern" which is a three-legged approach to the actual landing. The three aircraft legs include the "downwind" leg parallel to the runway, the "cross-wind" leg at a right-angle to the runway and "final" leg in line with the runway. The glare/glint analysis completely ignores the negative impact of

8-3 reflections affecting aircraft on the downwind and cross-wind legs. Further, the DEIR discusses potential impacts only to aircraft making straight-in approaches however, the impact to aircraft making departures is not addressed. Finally, the DEIR claims no glare/glint impact at night however if a panel

8-4 is reflective (even partially reflective) during the daytime, it is also going to be reflective at night, especially of moonlight, which in the desert can and is very bright during a substantial number of nights.

8-5 2. **Dust Effects** - The DEIR ignores impacts to aircraft from the very substantial amount of airborne dust which will be created by the proposed project. This dust, unless completely and constantly mitigated (unlikely at best) will obscure pilot's views during takeoff, while flying in the pattern and while landing. Obscuring of a pilot's view will at best, cause the aircraft to have to abort the takeoff or the landing and, at worst, cause the pilot to lose "situational awareness", in other words, to be unable to judge the position of the aircraft with relation to the ground and to the aircraft height above the ground. Losing view of the ground is likely to cause an aircraft to collide violently with the ground, with catastrophic results. In addition, dust ingestion into aircraft engines is also a very serious concern.

8-6 Aircraft engines must breath air. Dust ingestion can also be severe enough to cause actual engine failure. Again, this can lead to catastrophic results (i.e. aircraft crashes). Finally, heavy dust ingestion into aircraft engines causes accelerated aircraft engine wear and substantially higher maintenance and repair costs.

8-7 We urge you to consider and to address the above very serious safety and cost issues during your review of the Draft EIR. Siting the proposed solar project so as to surround an active airport on three sides is, in our view, a very dangerous and ill-advised proposition. The Barstow area aviation community, both civilian and military deserve no less than a continued safe flying environment at the Barstow/Daggett airport. Thank-you for considering our significant safety concerns.

Signed,

Jack Unger
Chair - Barstow Airport Aviation Safety Committee

8 BARSTOW AIRPORT AVIATION SAFETY COMMITTEE (BAASC)

8-1

Comment Summary:

The commenter states that **Appendix H-3**: Airport Safety and Compatibility Technical Memorandum of the EIR understates the impacts to aircraft safety and airport operations impacts.

Response:

This comment is introductory in nature and does not raise any specific environmental concerns nor address the adequacy of the EIR.

8-2

Comment Summary:

The commenter states that the glare/glint analysis in the EIR is inadequate because the analysis only evaluates impacts from the "straight-in approaches to land." The commenter states that there are different methods to land a plane other than the straight-in approach.

Response:

Impacts associated with glint and glare are evaluated in the EIR beginning on page 3.1-60 and in **Appendix H-3**. Refer to Master Response 6 for more information on the impacts of the project to landing approaches.

8-3

Comment Summary:

The commenter states that the EIR did not evaluate downwind and crosswind legs. The commenter also states that departure impacts are also not addressed.

Response:

Refer to Master Response 6 for more information on the downwind and crosswind approaches.

8-4

Comment Summary:

The commenter disagrees with the assertion in the EIR that the solar panels would not cause glint/glare at night.

Response:

Impacts associated with glint and glare at night are addressed in Master Response 6.

8-5

Comment Summary:

The commenter states that the EIR ignores impacts to aircraft from airborne dust. The commenter states that the dust could obscure pilot's vision and impact the pilot's ability to fly and land a plane.

Response:

Refer to Response 6-14. The project would not impact a pilot's ability to fly and land a plane.

8-6

Comment Summary:

The commenter states that airborne dust caused by the project could impact an airplane's engine.

Response:

Refer to Response 6-15. Dust from the project would not impact an airplane's engine to any greater degree than exists under current conditions.

8-7

Comment Summary:

The comment voices opposition to the project based on aircraft safety and airport operations impacts.

Response:

This comment is the conclusion of the letter and does not raise any specific environmental concerns nor address the adequacy of the EIR.

Nievez, Tom

From: K. Emmerich <atomicquailranch@gmail.com>
Sent: Saturday, April 06, 2019 12:21 PM
To: Nievez, Tom
Subject: Please extend the comment period for Daggett Solar

Hello,

9-1 You all have a very extensive EIR posted for this and should give us an additional 45 days to comment so all of the issues can be adequately addressed.

Please extend the comment period by 45 days.
http://www.sbcounty.gov/uploads/LUS/Environmental/Daggett%20for%20website/Daggett%20Solar%20-%20NOA%20Final%20%281%29%2C%203-15-2019.pdf

Thank you,

Kevin Emmerich
Basin and Range Watch
102551 Cedar Canyon Road
Cima, California 92323

9 BASIN AND RANGE WATCH

9-1

Comment Summary:

The commenter requests a 45-day extension to the comment period due to the length of the EIR.

Response:

The document is comprehensive and detailed to provide adequate information to decision-makers and stakeholders including the public. The 45-day review period is specified by CEQA. A comprehensive document is not a sufficient reason to warrant extension of the review period. Furthermore, the commenter provided an additional letter (Letter 10) within the 45-day review period, indicating they were properly notified and had time to submit comments. Pursuant to CEQA Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of CEQA and no unusual circumstances are present that would warrant extending the comment period.



Basin and Range Watch

April 29th, 2019

To: County of San Bernardino, Land Use Services Department

Tom Nievez, Contract Planner
385 N Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Email sent to: Tom.Nievez@lus.sbcounty.gov

Subject: Comments on the Environmental Impact Review for the proposed Daggett Solar Power Facility (State Clearing House No. 2018041007)

10-1 Basin and Range Watch is a 501(c)(3) non-profit working to conserve the deserts of Nevada and California and to educate the public about the diversity of life, culture, and history of the ecosystems and wild lands of the desert. Federal and many state agencies are seeking to open millions of acres of unspoiled habitat and public land in our region to energy development. Our goal is to identify the problems of energy sprawl and find solutions that will preserve our natural ecosystems, open spaces, and quality of life for local communities. We support energy efficiency, better rooftop solar policy, and distributed generation/storage alternatives, as well as local, state and national planning for wise energy and land use following the principles of conservation biology.

10-2 **Alternatives and California Environmental Quality Act:**

California Environmental Quality Act (CEQA)

CEQA, or the California Environmental Quality Act, is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

The project is also being reviewed under CEQA by San Bernardino County. CEQA requires consideration of a No Project Alternative and an Environmentally Superior Alternative. The No Project Alternative can be considered the most Environmentally Superior Alternative.

10-2

Cont'd

CEQA's Substantive Mandate:

"[P]ublic agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects" of the project. (Pub. Resources Code, § 21002.)

There are obvious alternatives to destroying biological, cultural and visual resources in the built environment. This justifies a No Project Alternative under CEQA.

The Over-generation Problem in California Due to Large-scale Solar Projects

The need for this project is questionable, as it adds a large cumulative impact to grid congestion in California. The state is currently experiencing a worsening glut of solar power at peak times on the transmission grid system. This has been shown as the Duck Curve, where renewable energy generation exceeds demand in the middle of the day, then causing the need to ramp up generation at the end of the day after the sun sets with inefficient natural as peaker plants. At times, as much as 13,000 MW is needed in 3 hours in the evening hours, as solar projects go offline at night.

10-3

The California Independent System Operator (CalSO) states: "In almost all cases, oversupply is a manageable condition but it is not a sustainable condition over time — and this drives the need for proactive policies and actions to avoid the situation." (http://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf)

Adding yet another large-scale solar project onto the grid would not be in the public good, and further push the over-generation problem into a high-risk situation, instead of solving the problem with such solutions as rooftop solar systems paired with local storage in improved net-energy metering.

The problem is currently being managed by the wasteful and highly inefficient means of "curtailment." CalSO states, "Curtailment is an operational tool that works well in today's energy market. But as the state introduces increasing amounts of renewable resources, oversupply conditions are expected to occur more often. The ISO is seeking solutions to avoid or reduce the amount of curtailment of renewable power sources thus enabling the state to maximize the use of clean energy sources." Curtailment charts show that in April of 2017, over 80,000 MWh of generation had to be shut off to keep the grid balanced (http://www.caiso.com/informed/Pages/ManagingOversupply.aspx).

10-3 *Cont'd*

The total solar and wind energy curtailment amount for 2017 year-to-date as of December 8, 2017, was 367,651 MWh (http://www.caiso.com/Documents/Wind_SolarRealTimeDispatchCurtailmentReportDec08_2017.pdf). This is an incredibly wasteful land use for energy sprawl that has converted diverse ecosystems and cultural resources into what will apparently be an only partially-functional energy generating project.

An article in Mother Nature Network, June 26, 2017 (https://www.mnn.com/earthmatters/energy/blogs/california-generating-so-much-solar-energy-its-paying-other-states-take-it) summarized even more problems hoisted onto the state grid.

For the first quarter of 2017, California spent millions paying Arizona utilities to take its excess solar. In March alone, there were 14 days when the state exported its solar production, including a record-setting stint on March 11 from which 40 percent of the state's electricity came from utility-scale solar generation. While this so-called "negative pricing" eases during the summer months when consumer demand for electricity increases by more than half, [Ivan] Penn reports that the pay-off trend will only increase in the coming years as more solar projects come online.

10-4

How much of the Daggett Solar Project energy will simply have to be curtailed after the project is built, or sold to other states? California is showing the stresses of trying to achieve a 50% Renewable Energy Portfolio without better planning, adding utility-scale projects willy-nilly instead of re-organizing the proportion of renewable energy sources that come from Distributed Energy Resources (including residential battery storage paired with rooftop solar panels)—that could help alleviate the grid problems by load-shifting energy generated with solar during the day, and using it at night, instead of ramping up fossil fuel power plants.

Please consider a No Project Alternative due to California's high potential with distributed solar energy.

Biological Resources:

10-5

Avian Solar Impacts

The EIR fails to provide enough detail on these potential impacts. While it refers to the "lake effect" as a hypothesis, it should admit that about 3 to 4 times as many bird mortalities are detected on the parameters of large-scale solar project than on undeveloped land. The EIR is also using a study that focused of concentrated thermal solar plants and the avian issue has been identified for both CSP and photovoltaic facilities. The EIR does not take into account the different reflective nature of thin-film and other PV panels. What PV technology would be used for Daggett Solar?

10-6

The EIR claims that the mortality of birds is low for PV facilities but provides no numbers for the facilities on hand. For example, there is a monitoring program for the Desert Sunlight Solar Project in Riverside County, California. A list of some bird kills for the Desert Sunlight Solar Project can be found here: https://www.kcet.org/redefine/water-birds-turning-up-dead-at-solar-projects-in-the-desert

10-6

Cont'd

DESERT SUNLIGHT		Zone	Residency	MNI
Pied-billed Grebe	*Podilymbus podiceps*	water	migrant	1
Eared Grebe	*Podiceps nigricollis*	water	migrant	3
Sora	*Porzana carolina*	water	migrant	1
American Avocet	*Recurvirostra americana*	water	migrant	1
Cinnamon/Blue-winged Teal	*Anas discors/cyanoptera*	water	migrant	1
Western Grebe	*Aechmophorus occidentalis*	water	migrant	9
Brown Pelican	*Pelecanus occidentalis*	water	migrant	2
Double-crested Cormorant	*Phalacrocorax auritus*	water	migrant	2
Black-crowned Night-Heron	*Nycticorax nycticorax*	water	migrant	1
Yuma Clapper Rail	*Rallus longirostris*	water	resident	1
American Coot	*Fulica americana*	water	migrant	5
Mourning Dove	*Zenaida macroura*	ter	resident	3
White-winged Dove	*Zenaida asiatica*	ter	resident	1
Lesser Nighthawk	*Chordeiles acutipennis*	air	resident	2
Common Poorwill	*Phalaenoptilus nuttallii*	air	resident	1
Costa's Hummingbird	*Calypte costae*	air	resident	1
Ash-throated Flycatcher	*Myiarchus cinerascens*	air	resident	1
Black-throated/Sage Sparrow	*Amphispiza sp.*	ter	resident	1
Black Phoebe	*Sayornis nigricolis*	air	resident	1
Loggerhead Shrike	*Lanius ludovicianus*	ter	resident	2
Common Raven	*Corvus corax*	ter	resident	1
Horned Lark	*Eremophila alpestris*	ter	migrant	1
Tree Swallow	*Tachycineta bicolor*	air	migrant	1
Townsend's Warbler	*Setophaga townsendi*	ter	migrant	2
Common Yellowthroat	*Geothlypis trichas*	ter	migrant	1
Savannah Sparrow	*Passerculus sandwichensis*	ter	migrant	1
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	ter	migrant	1
Wilson's Warbler	*Cardellina pusilla*	ter	migrant	2
Western Tanager	*Piranga ludoviciana*	ter	migrant	2
Black-headed Grosbeak	*Pheucticus melanocephalus*	ter	migrant	1
Great-tailed Grackle	*Quiscalus mexicanus*	ter	resident	2
Brown-headed Cowbird	*Molothrus ater*	ter	resident	1

^2014 list of bird mortalities from the Desert Sunlight Solar Project. It is all PV and has created significant avian mortality. From the report: ***Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis, Kagan, Rebecca A., Viner, Tabitha C., Trail, Pepper W., Espinoza, Edgard O. National Fish and Wildlife Forensics Laboratory***

Data from 7 solar projects in California has revealed 3,545 bird kills from 183 species from 2012 to 2016. This can be referenced from the 2016 Multi-Agency Avian Solar Working Group conference from 2016. It can be referenced here: http://blmsolar.anl.gov/program/avian-solar/docs/Avian-Solar_CWG_May_2016_Workshop_Slides.pdf

10-7

The EIR fails to provide a list of all then potential birds that could be killed by a PV Facility including some potential Threatened and Endangered Species. These include Yuma clapper rail, Yellow-billed Cuckoo and the Tricolored blackbird (which were confirmed located in the area).

The Desert Sunlight Solar Project as well as the Ivanpah Solar Project are believed to be causing bigger avian mortalities than other solar projects. That is because they are both close to artificial bodies of water. Ivanpah is near the Primm, Golf Course and Desert Sunlight is near Lake Tamarisk.

10-8



^The Daggett Solar Project would be located near a reservoir near the Mojave River. It is likely that this facility would also have more bird mortality issues do to the close distance to open water.

10-9

This has been a big problem for the renewable energy projects located in the California Desert. Two of the solar projects in particular, Desert Sunlight and Genesis, located to the south of Daggett, have reported high numbers of avian mortality. In fact, Wally Erickson of West Biological Consulting made a presentation at the Technical Symposium on Avian-Solar Interactions called Regional Observations and Trends in Avian Monitoring and Mortality. In the presentation, he said that the Desert Sunlight Project has reported some of the larger avian mortality numbers.

The Solar industry and some agency representatives have suggested that many of the birds would have died in these locations even if no solar project had been built there. But the Bureau of Land Management conducted a study on this subject and it was presented at the Technical Symposium.

Amy Fesnock of BLM gave a very interesting talk on her background avian mortality study. BLM decided to piggy-back avian mortality surveys onto desert tortoise line distance sampling, which has a long history of annually counting tortoises for recovery estimates, across the desert in a rigorous scientific fashion.

Fesnock came up with a way to have surveyors also look for any dead birds along these transects, to estimate background avian mortality in more natural areas of the desert, not disturbed by solar development.

Surveyors were trained to find carcasses placed out in the desert, and 97% of detections were within 10 meters of the line. So 10 meters was used as the effective sampling width.

Carcasses were placed out on desert sites to see how long they lasted. USGS Mathematician Manuela Husto applied statistical sampling techniques to the data and applied detection curves for large, medium, and small birds, and was able to estimate when carcasses would no longer be observable.

453 transects were walked by biologists from March to May in 2015, in the Fremont-Kramer Area of Critical Environmental Concern (ACEC), Superior-Cronese ACEC, Ord-Rodman ACEC, Joshua Tree National Park, the Pinto Mountains, Chuckwalla ACEC, and Chocolate Mountains. So these surveys covered a huge swath of the California Desert with intensive surveys walking the ground searching the ground. Surveyors covered 37 square miles of relatively natural desert.

10-9 *Cont'd*

In all this survey effort, only 6 avian mortalities were found: one adult red-tailed hawk, apparently killed by a great-horned owl as it lay below an owl nest; one juvenile red-tailed hawk; one rock wren that was apparently predated by a loggerhead shrike, as it was preserved on a shrike perch impaled on a cactus; and three feather spots of unknown species.

This is far less than the avian mortality rate on solar projects. Some solar companies have implied that their bird mortality rate is not much greater than the natural background mortality rate in the desert, as before a project broke ground. But Fesnock's study refutes this strongly.

The desert background mortality rate determined from line distance sampling in 2015 was 0.024 birds/acre/year. This could be broken down further to 0.004 large birds/acre/year, 0.0026 medium-sized birds/acre/year, and 0.0214 small birds/acre/year.

But on three unnamed solar projects, Fesnock explained that the avian mortality rate increased to 1.7 birds/acre/year, 0.4 birds/acre/year, and 0.6 birds/acre/year.

Fesnock concluded, "When compared to mortality rates from solar projects, background mortality does not appear to be a significant factor and could easily be accounted in the sampling design error rates."

The report can be viewed here:
http://www.basinandrangewatch.org/Fesnock_Background_Mortality.pdf

Accuracy of Reporting

10-10

While we believe that the biologists hired to survey these projects are highly qualified individuals, we question the accuracy of the reporting because we have been told some biologists have lost jobs over reporting information. Interestingly, this was backed up at the last Desert Tortoise Council Symposium in 2016. Kathryn Simon of Ironwood Consulting told everybody that the politics of management from the solar companies often get in the way of accurate reporting. In the Symposium Abstracts, she reported *"the political backing that supports energy development in the western part of the country has also resulted in the neglect or abuse of natural resources. While a great deal of effort is placed on properly*

10-10 Cont'd

siting and permitting a project, little or no oversight happens once the project enters construction and continues into operations and maintenance. This has led to a "power vacuum," often filled by the project proponent's "environmental" staff who often ensure the least amount of information leaves the project and is reported to wildlife agencies and the public. Specific examples of such behavior are provided and suggestions made for biologists on the ground in achieving their goals of proper monitoring oversight."

The report can be viewed here:
http://www.deserttortoise.org/ocr_DTCdocs/2017DTCSymposiumAbstracts-OCR.pdf

Are we getting the entire story?

Focused vs. Incidental Surveys

10-11 The mortality numbers reported on the Genesis Solar Project to the east were much higher when the mortality finds were incidental (workers randomly finding bird mortality). Now that surveys are focused, the numbers appear to be about half of what they were. This raises the questions: is mitigation working? And are mortalities not being reported?

More info here: https://www.kcet.org/redefine/water-birds-turning-up-dead-at-solar-projects-in-the-desert

Sand Transport – Mojave Fringe-Toed Lizards

10-12 It is just about impossible to build a solar project of this size in this location and avoid blocking the sand transport corridor. Sand transport maintains a sand ecosystem that supports many species including the Mojave fringe-toed lizard. Sand systems are almost are almost as rare in the Mojave Desert as wetlands. When we develop those habitats and even block the source of sand, they species that depend on them become imperiled. The Mojave River is a relic Ice Age habitat and the sand in that system is not a renewable resource. This project will have negative impacts on these dune systems.

Air Quality – Fugitive Dust

We are also particularly concerned about the compromised air quality that will most likely result from the construction of this project.

10-13 The land rush of large solar projects all over the southwestern US has resulted in expedited approval of many of these projects. In most of the cases, the developers have not adequately mitigated the fugitive dust that has resulted in the removal of large acreages of vegetated desert lands.

Removal of stabilized soils and biological soil crust creates a destructive cycle of airborne particulates and erosion. As more stabilized soils are removed, blowing particulates from recently eroded areas act as abrasive catalysts that erode the remaining crusts thus resulting in more airborne particulates.

We are concerned that industrial construction in the region will compromise the air quality to the point where not only visual resources, but public health will be impacted.

10-13

Large solar projects in desert areas are very bad for air quality. Removal of stabilized soils and biological soil crust creates a destructive cycle of airborne particulates and erosion. As more stabilized soils are removed, blowing particulates from recently eroded areas act as abrasive catalysts that erode the remaining crusts thus resulting in more airborne particulates.

Cont'd

The Right of Way for the Desert Sunlight Project to the west guaranteed that mitigation would control fugitive dust emissions, but photos taken of the Desert Sunlight Project during initial construction show "dust blackouts" that have occurred when there are strong wind events. These dust blackouts were reported to be rare in the area before First Solar disturbed so much of the ground with large earth moving machines.

10-14

Epidemiologists investigated an outbreak of valley fever that had sickened 28 workers at two large solarpower construction sites in San Luis Obispo County:
http://articles.latimes.com/2013/may/01/local/lame-in-valley-fever-solar-sites-20130501

10-15

We are also concerned that this will add to the cumulative impacts of several constructed solar projects in the region.

Visual/Negative Impacts to the Community

10-16

A 3,500 acre Solar facility will have huge visual impacts ranging from a big blue blotch of solar panels to a tangle of new transmission lines. Fugitive dust kicked up from construction also creates a visual impact.

Degrading the visual quality of a local community often negatively impacts the local economy. It is more difficult to sell a property when it is surrounded by a large energy facility or even near one. The health impacts from fugitive dust often will often discourage people from purchasing property in a local area.

10-17

A large-scale solar facility only creates about 2 years worth of temporary construction jobs. The average large-scale solar farm only creates about 5 to 10 full time jobs. But the impacts to the local real estate economies are mostly negative. These projects really do not help local communities more than they hurt them.

Conclusion:

10-18

The Daggett Solar Project will create huge air quality, biological and economic impacts. Solar energy has maxed out in California on a large-scale. Distributed energy is carbon free, has the least land impacts and works. Please select a No Project Alternative for Daggett Solar as there are feasible alternative locations to build such a facility.

Thank you

Kevin Emmerich, Co-Founder

Basin and Range Watch

102551 Cedar Canyon Road

Cima, California 92323

10 BASIN AND RANGE WATCH

10-1

Comment Summary:

This comment is introduction of the letter.

Response:

This comment does not raise any specific environmental concerns nor address the adequacy of the EIR.

10-2

Comment Summary:

This comment states that CEQA requires consideration of a No Project Alternative and an Environmentally Superior Alternative. The commenter states that the No Project Alternative is the environmentally superior alternative because it does not destroy biological, cultural, and visual resources.

Response:

As stated in Section 4.0, Alternatives to the Proposed Project of the EIR, CEQA requires that an environmentally superior alternative be identified; that is, an alternative that would result in the fewest or least significant environmental impacts. If the No Project Alternative is the environmentally superior alternative, State CEQA Guidelines Section 15126.6(e)(2) requires that another alternative that could feasibly attain most of the project's basic objectives be chosen as the environmentally superior alternative.

The No Project Alternative is the environmentally superior alternative. However, in accordance with CEQA Guidelines Section 15126.6(e)(2), a secondary alternative must be chosen since the No Project Alternative is environmentally superior. Therefore, Alternative 2, the Reduced Footprint Alternative, is the environmentally superior alternative. Alternative 2 reduces impacts associated with the proposed project due to the avoidance of significant air quality impacts and reduced impact on sensitive biological resources. Alternative 2 would not result in any increase in environmental impacts. Alternative 2 also attains most of the basic project objectives; however, it would not allow for the project to achieve its key goal of utilizing the existing interconnection capacity at the Coolwater Substation to provide approximately 650 MW of renewable energy leveraging the use of existing electrical transmission infrastructure and would provide only about 185 MW of energy.

10-3

Comment Summary:

This comment questions the need of the project because the commenter states that California has too much peak time power due to solar projects.

Response:

The economics of the project or the perceived need for the energy to be produced by the project based on the commenter' view of California's energy consumption are not required to be evaluated under CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The commenter does not present information that materially affects the methods or findings of the EIR.

10-4

Comment Summary:

This comment considers future energy consumption and other scenarios for energy generation and use in the state. The commenter requests that the No Project Alternative be considered.

Response:

Refer to Response 10-3 above. The commenter does not present information that materially affects the methods or findings of the EIR because an EIR is not required to analyze the state's energy consumption needs. As indicated in Section 4.0, Alternatives to the Proposed Project of the EIR, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project.

10-5

Comment Summary:

This comment states that the EIR fails to provide information on the potential impacts to avian species due to the "lake effect." The commenter states that the analysis in the EIR for the lake effect relied on studies from concentrated thermal solar instead of PV solar plants. The commenter then asks what type of PV technology the project would use.

Response:

Information on the "lake effect" is provided in Section 3.4, Biological Resources; Nesting Birds and Avian/Bat Collisions of the EIR. Refer to Response 2A-12 regarding avian impacts due to the lake effect. No evidence exists that a solar project in this location will result in population-level impacts to birds or bats and the commenter does not provide any. The scientific literature has not established that PV solar projects create a significant impact to water birds due to a "lake effect." As such, project impacts associated with bird collisions are considered less than significant. Furthermore, the applicant would voluntarily implement a company-wide wildlife incident reporting program that would require the notification of any downed state- and/or federally listed species, if found, to state and/or federal wildlife agencies in accordance with

applicable law. Information on the project's design can be found in Section 2.0, Project Description; Facilities and Design. The commenter does not present information that materially affects the methods or findings of the EIR.

10-6

Comment Summary:

This comment states that the EIR does not quantify the number of bird mortalities due to the project. The commenter then provides a link to a different study and table to support the commenter's claim that bird mortalities are undercounted in the EIR.

Response:

Refer to Response 2A-12 regarding avian impacts due to the lake effect. The analysis in Section 3.4, Biological Resources, of the EIR, cites peer-reviewed summaries and analyses of the potential for avian collisions at PV solar facilities, including information from the region and some of the facilities referenced by the commenter. Estimated rates of avian mortality at solar facilities are presented, ranging from 0.5 to 10.2 per MW. These levels of mortality are not anticipated to result in population-level impacts to any species and the commenter has provided no evidence to the contrary. The commenter does not present information that materially affects the methods or findings of the EIR.

10-7

Comment Summary:

This comment states that the EIR fails to provide a list of all the potential bird deaths by species, like the Yuma clapper rail, yellow-billed cuckoo, and tricolored blackbird.

Response:

As discussed in Section 3.4, the probability of avian collisions at the proposed solar facility is low because use and abundance surveys show that avian use of the site is low and there are very few nesting opportunities on-site. Therefore, there is little reason to believe that birds will collide with the solar panels in significant numbers that could cause population-level effects. It is not informative to provide a list of potential bird deaths by species, other than to acknowledge that impacts to individual birds of a variety of species, including tricolored blackbirds, could occur. The likelihood of individual Yuma clapper rails or yellow-billed cuckoos (federally listed threatened or endangered species) being harmed at the proposed facility is exceedingly low, as there is no nesting habitat in the region and the project area is not in a commonly used migration corridor. Refer to Response 2A-12 regarding avian impacts from collisions.

10-8

Comment Summary:

This comment states that the project would result in higher bird mortality rate when compared to other solar projects due to the proposed project's proximity to a reservoir and Mojave River.

Response:

Section 3.4, Biological Resources, of the EIR, discusses the potential lake effect and acknowledges that the project is along the Pacific Flyway and near a number of ponds and other small open bodies of water in the Daggett/Barstow area. However, it also states that it is distant from known major avian migratory routes or stopover locations where migrating birds are likely to congregate. As further discussed in **Appendix E-2**, the project is distant from major avian routes or stopover locations such as the Colorado River, Salton Sea, and Mono Lake. The Mojave River is a dry riverbed; while, there are ponds and other small open bodies of water in the Daggett/Barstow area that could attract migrating birds, few of those are adjacent to or otherwise close to the project area. Because of the lack of large water bodies in the area, waterbirds and other migrating birds that might be attracted to water sources are likely to migrate through the area at high elevations. As listed in Appendix A of this report, no waterfowl or other water birds were observed during extensive surveys conducted throughout the Daggett Solar Power Facility in the spring of 2018. The commenter does not present information that materially affects the methods or findings of the EIR.

10-9

Comment Summary:

This comment provides additional information regarding potential avian mortalities due to solar projects.

Response:

The EIR does not claim that the project will have no greater avian mortality rates than background levels. The analysis in Section 3.4, Biological Resources, of the EIR, cites peer-reviewed summaries and analyses of the potential for avian collisions at PV solar facilities, including information from the region and some of the facilities referenced by the commenter, and compares those potential effects to other human-caused causes of avian mortality and also finds such rates to be less than significant. The commenter does not present information that materially affects the methods or findings of the EIR.

10-10

Comment Summary:

This comment questions the accuracy of the biological surveys performed for the project and provides an anecdotal story to support the claim that biologists do not accurately report findings due to fear of repercussions from the solar industry.

Response:

Refer to Response 2A-12 regarding avian impacts due to the lake effect. The anecdotal evidence that wildlife biologists hired to perform post-construction mortality monitoring do not accurately report their findings for fear of repercussion does not support a conclusion that avian impacts

from this solar project will be significant. The commenter does not present information that materially affects the methods or findings of the EIR.

10-11

Comment Summary:

This comment provides information on the supposed bird mortality rate from a different solar power project. The commenter then asks if mitigation measures actually work and whether avian mortality rates are accurately reported at solar power sites.

Response:

Refer to Response 2A-12 regarding avian impacts due to the lake effect and to Response 10-10. The commenter does not present information that materially affects the methods or findings of the EIR.

10-12

Comment Summary:

This comment states the project would block the sand transport corridor. The commenter states that the sand transport corridor supports habitat for many species, such as the Mojave fringe-toed lizard. The commenter states that the project would have a negative impact on the sand dunes.

Response:

The sand-transport-path is discussed under Impact 3.3-3, Wind-Transported Materials. Refer to Master Response 8 for more information on the impacts from wind-transported materials.

As stated in Section 3.4, Biological Resources, the Mojave fringe-toed lizard was determined to have a low potential for occurrence because only 80 acres of marginally suitable habitat occurs on-site while better quality habitat occurs adjacent to the project site. Habitat within the project site is marginally suitable for this species and is unlikely to be an important part of any dispersal corridor between areas with better quality habitat because the sites (1) do not have extensive or well-developed sand sheets (relative to areas farther east in the Mojave Valley), (2) are partially disturbed, and (3) are adjacent to cultivated fields. No Mojave fringe-toed lizards were detected during the presence/absence surveys conducted in April–June 2018 based on protocol for Coachella Valley fringe-toed lizard (*Uma inornata*), which occupies similar habitat and exhibits similar behavior as Mojave fringe-toed lizard. In all events, the project will not eliminate sand transport.

10-13

Comment Summary:

The comment states that air quality impacts would occur as result of the project due to the removal of stabilized soils and biological soil crust. The commenter states that the project would cause airborne particulates and erosion.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts. Refer to Master Responses 1 and 8 for further information regarding this topic.

As stated under Impact 3.9-3, the project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are incorrect. Refer to Master Response 1 and 8 for more information on air quality impacts and analyses. Air quality impacts were properly disclosed in the EIR.

10-14

Comment Summary:

This comment references a break-out of Valley Fever in San Luis Obispo County.

Response:

Contrary to the commenter's assertion, the implementation of mitigation measure **AIR-1** and **AIR-2** would provide significant control of fugitive dust emissions and limit the potential of exposure to Valley Fever. Therefore, potential exposure to Valley Fever is reduced through implementation of dust control mitigation measures and standard MDAQMD rules. Refer to Master Response 2 regarding Valley Fever.

10-15

Comment Summary:

The commenter states that this will add to the cumulative impacts of several solar projects.

Response:

It is unclear to what cumulative impact the commenter is referencing in this comment. It is assumed that the commenter is referencing Valley Fever. Contrary to the commenter's assertion, the implementation of mitigation measure **AIR-1** and **AIR-2** would provide significant control of fugitive dust emissions and limit the potential of exposure to Valley Fever. Therefore, potential exposure to Valley Fever is reduced through implementation of dust control mitigation measures and standard MDAQMD rules. Refer to Master Response 2 regarding Valley Fever.

10-16

Comment Summary:

This comment states that the project would result in visual impacts due to the size and scale of the solar panels in addition to the fugitive dust in the air. The commenter then comments on the economic impacts associated with selling nearby properties.

Response:

An EIR is not required to evaluate long- and short-term economic effects of the project on the local housing market. Refer to Master Response 1 for more information on air quality impacts such as fugitive dust. Additionally, refer to Master Response 7 for more information on the methods used in the visual analysis.

10-17

Comment Summary:

Solar projects do not create enough temporary and permanent jobs to outweigh the impacts to local real estate and economies. This comment states that solar projects do not help the local economy.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The DEIR evaluation is consistent with the guidance provided in Section 15131.

10-18

Comment Summary:

This is a conclusion summarizing the letter's comments and requesting selection of the No Project Alternative.

Response:

Comment noted. This is the concluding statement of the letter requesting the No Project Alternative to be selected.

This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues. As indicated in Section 4.0, Alternatives to the Proposed Project of the EIR, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project.

Jason L. Sanchez
Manager Engineering

BNSF Railway Company

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(909) 386-4470 (office)
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April 29, 2019

Tom, Nievez
Contract Planner
County of San Bernardino
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Tom.Nievez@lus.sbcounty.gov

VIA EMAIL AND FIRST CLASS MAIL

SUBJECT: Proposed Daggett Solar Power Facility Project

Dear Mr. Nievez,

11-1 This letter is in response to the Notice of Availability of a Draft Environmental Impact Report for the Daggett Solar Power Facility (Project). BNSF Railway owns and operates a Class 1 railroad adjacent and parallel to the proposed facility. More specifically, the Project is proposed to parallel BNSF's Needles Subdivision for many long stretches. As it indicated after reviewing the NOP for the Project, BNSF remains concerned that the Project could impact it's operations and reiterates the following more specific comments:

11-2 1) It is critical that any grading of the facility topography not change the water flow and create a discharge onto BNSF property;

11-3 2) The Project should not add glint or glare that would interfere with a locomotive engineer, machine operator or track inspector's ability to see signals or an obstruction on the track; and

11-4 3) If the Project will create additional traffic during construction or operation, please consider whether grade crossing improvements will be necessary to accommodate the same and mitigate any impacts to BNSF's operations.

11-5 To further assist in a determination about whether these comments have or will be addressed, BNSF would request a copy of the site grading plan and the collector layout for the Project.

Should you have any questions regarding our comments above, please feel free to contact me.

Sincerely,

Jason L. Sanchez

11 BNSF RAILWAY

11-1

Comment Summary:

The comment states a concern that the project could adversely impact BNSF operations.

Response:

This comment provides an introductory discussion and description of the project as proposed. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

11-2

Comment Summary:

The comment states that it is critical that project grading does not change the water flow and create a discharge into BNSF property.

Response:

As stated under Impact 3.9-4 of the EIR, the published peak 100-year flow for the Mojave River (downstream conveyance for the project site) is 18,500 cfs. The proposed site-wide increase of 570 cfs would result in a total wash flow of 19,070 cfs, a 3 percent increase. Based on the negligible increase in flows expected from project implementation, along with the anticipated regrowth of natural vegetative cover, which would reduce peak flows to near-existing conditions, a less than significant impact due to altered water flow would occur to off-site properties. More specific information about the hydrology study performed by the applicant and approved by the County is contained in **Appendix I** of the EIR. Project design and engineering takes into account the data in this study.

The County will approve final grading and design plans prior to construction to confirm that the project has in fact been designed such that it would not adversely impact off-site uses and operations including the existing BNSF operations.

11-3

Comment Summary:

This comment states that the project should not add glare or glint that would interfere with a locomotive engineer, machine operator, or track inspector's ability to see signals on an obstruction on the track.

Response:

Refer to Master Response 6 for more information on the glint and glare analysis in the EIR. Glint or glare is not anticipated to interfere with locomotive engineer, machine operator, or track inspector's ability to see signals on an obstruction on the track. PV panels have a lower index of refraction/reflectivity than common sources of glare in residential/developed environments, in

which trains pass through. The glare and reflectance levels from a given PV system are lower than the glare and reflectance levels of steel, snow, standard glass, plexiglass, and smooth water (Section 3.1, Aesthetics and Visual Resources; Glint and Glare). The glare and reflectance levels of panels are further reduced with the application of anti-reflective coatings. PV suppliers typically use stippled glass for panels as the "texturing" of the glass to allow more light energy to be channeled/transmitted through the glass while weakening the reflected light. With the application of anti-reflective coatings and use of modern glass technology, project PV panels would display overall low reflectivity.

11-4

Comment Summary:

This comment states that if the project would increase traffic during construction and operations then the County should consider grade crossing improvements.

Response:

No grade crossing improvements are proposed for the project. The applicant will work directly with BNSF to limit impacts during construction. Additional vehicle traffic during operations would be minimal with a maximum addition of up to eight vehicles to existing traffic levels. Improvements are not warranted. As stated under Impact 3.12-1, construction traffic generated by the project has the potential to cause temporary impacts to transportation and traffic in the area. Implementation of mitigation measure **TRA-1** would reduce construction-related traffic impacts because it requires the project applicant to receive a County approved Construction Traffic Control Plan prior to commencement of construction activities. Therefore, impacts would be less than significant with mitigation. No further mitigation and/or improvements are required.

11-5

Comment Summary:

The commenter requests a copy of the site grading plan and the collector layout for the project.

Response:

The grading plan and collector layout for the project has not been finalized. However, the preliminary grading and drainage is shown on the Condition Use Permit Area Map submitted to the County as part of the CUP application. The applicant sent this to BNSF on June 3, 2019, by certified mail.

March 7, 2019

Mr. Tom Nieves, Contract Planner
San Bernardino County
Land Use Services Department

Ms. Terri Rahhal, Manager,
Planning Division, Director
Land Use Services Department
San Bernardino County

Supervisor Robert Lovingood
First District
San Bernardino County

Colonel John Poole
Commanding Officer, U.S. Army
Fort Irwin

Ms. Kate Gordon, Director
Governor's Office of Research
and Planning

Ms. Michelle D. Blakemore
County Counsel
San Bernardino County

SUBJECT: A QUESTION: IS THE SAN BERNARDINO COUNTY PROCESSING OF THE CLEARWAY ENERGY GROUP'S 3,500-ACRE INDUSTRIAL-SCALE SOLAR APPLICATION, IN AND AROUND THE DAGGETT AIRPORT, IN COMPLIANCE WITH THE SAN BERNARDINO COUNTY GENERAL PLAN AND DEVELOPMENT CODE? (APPLICATION P201700679). A PUBLIC RECORDS ACT REQUEST.

Greetings to everyone:

12-1 The questions and comments herein on the above solar farm application, consisting of about 3,500 acres, in and around the economically disadvantaged communities of Daggett and Newberry Springs and the County owned airport at Daggett are addressed to Ms. Terri Rahhal for her reply. The other addressees are concerned parties.

12-2 1--The concerned citizens of our communities did send two Public Records Act requests to San Bernardino County and received about 700 to 1,000 pages of public records in reply. And among all those pages, only one two-page letter surfaced from the United States Army, dated April 20, 2018, from Lt. Col. Tommy L. Cardone.
There was no reply from the County Planning Division to the United States Army about their expressed concerns about radiofrequency emmissions or glint/glare air safety issues. If the County Planning Division has engaged in discussions with the Army inre their safety concerns about the solar project, we are requesting copies of all public records re those safety concerns, and will pay up to $50.00 to have them provided to CEQA-NOW.

12-3 2--The San Bernardino County General Plan requires their Planning Division to review all development affecting any federal or military installation with the federal entity. It says so at General Plan Goal LU 11 and LU 11.2 and LU 11.3.

12-4 In the INTRODUCTION to the San Bernardino County General Plan it states, "The California Supreme Court has called the general plan "the constitution for future development." The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses--both public and private."

12-5 As you well know, Ms. Rahhal, the Draft Newberry Springs/Harvard Community Plan, dated 12/7/84, prepared by County Planning Division staff, recommended that only airport related industrial uses be approved around the Daggett Airport, other than interim uses.
But Ms. Rahhal has abused the English language by describing the proposed 3,500-acre solar facility as an "interim" use. Her defination is a long way from the defination of temporary uses described in the County Development Code: i.e. seasonal holiday sales, temporary signs, garage sales, etc. (Development Code Section 84.25.040). And her defination of interim can't be

March 7, 2019

Mr. Tom Nieves, contract planner
Ms. Terri Rahhal, director
Supervisor Robert Lovingood
Colonel John Poole, U.S. Army
Ms. Kate Gordon, director
Ms. Michelle D. Blakemore, county counsel

12-5 *Cont'd* found in any locally available dictionary.

12-6 3--The County Planning Division is required by their own General Plan language, quoted above, to require the NRG/Clearway Energy Group's 3,500-acre solar farm application around the Daggett Airport, to fully comply with the FAA's "Interim Policy: FAA Review of Solar Energy System Projects on Federally Obligated Airports," Federal Register, Vol 78, no. 205, Wed., October 23, 2013, p.63276.

12-7 4--Where is the FAA input re this huge solar project proposal around the County airport at Daggett? Have they even been notified? Please advise. This is our Public Records Act request for same.

12-8 5--THE TRUTH WILL SET YOU FREE.

Thank you for your consideration of these matters.

Sincerely,

Robert Berkman, President, CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: samuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: robert vasseur, president, newberry springs/harvard property owners assn.
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, director, operations, mojave desert air quality management dist.

12 CEQA NOW

12-1

Comment Summary:

This comment provides an introductory discussion and description of the project as proposed.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

12-2

Comment Summary:

The comment states that concerned citizens of the community received two Public Records Act requests from San Bernardino County that totaled 700 to 1,000 pages which included a letter from the U.S. Army. The commenter states that the County Planning Division did not reply to the Army about concerns over radiofrequency and glint/glare safety issues or did not include the response in the records request. The commenter is requesting copies of any correspondence.

Response:

Appendix H-3, Airport Safety and Compatibility Technical Memorandum, of the EIR, provides a discussion of the active consultation with Fort Irwin beginning with a meeting on June 22, 2018. The purpose of this meeting was for the applicant to provide an overview of the Daggett Solar Power Facility to the Fort Irwin military base representatives as a follow-up to the letter submitted by Fort Irwin on the Notice of Preparation published pursuant to CEQA, and to solicit feedback on preliminary design and potential for compatibility with Fort Irwin operations. The notes from this meeting are included in Attachment 2 of **Appendix H-3** of the DEIR.

In addition, a technical report was prepared by a specialist regarding the potential for the project to impact magnetic fields or radio frequencies in the area that could have an effect on airport operations; the results of this study were also presented to Fort Irwin staff at the June 2018 meeting (see **Appendix M** in the Final EIR). The report is included in Final EIR and available for review. The conclusion of the report is that the project presents minimal risk to airport avionics.

Refer to Master Response 6 for more information on airport safety issues, including the glint and glare analysis conducted in the EIR.

12-3

Comment Summary:

The comment states that LU 11, LU 11.2, and LU 11.3 of the San Bernardino County General Plan require the Planning Division to review all development affecting federal or military installations.

Response:

The project is being designed in conformance with Airport Comprehensive Land Use Plan (ACLUP) policies and with input received from Airport and Fort Irwin Training Center staff (see Section 3.8, Hazards and Hazardous materials of the EIR). See **Appendix H-3** of the EIR for documentation of consultations with representatives of Fort Irwin. The project is consistent with LU 11, LU 11.2, and LU 11.3.

12-4

Comment Summary:

The comment describes the purpose of the General Plan.

Response:

Comment noted for the record regarding the purpose of the County's General Plan.

12-5

Comment Summary:

The comment states that the Draft Newberry Springs/Harvard Community Plan dated December 7, 1984, recommends that only airport-related industrial and interim uses are allowed around the Daggett Airport. The commenter then disagrees that a solar power facility is an interim use.

Response:

The Draft Newberry Springs/Harvard Community Plan from 1984 was not referenced in the EIR because it is not an officially adopted document. There is no applicable policy requiring only industrial or interim uses near the Daggett Airport. The commenter disputes a staff member's characterization of the use as interim in nature but does not present information that materially affects the methods or findings of the EIR.

12-6

Comment Summary:

This comment states that the project is required to comply with the FAA's "Interim Policy: FAA Review of Solar Energy System Project on Federally Obligated Airports."

Response:

Beginning on 3.8-24 of Section 3.8, Hazards and Hazardous Materials, of the DEIR, the DEIR states that an evaluation of the project was completed in accordance with the FAA's "Interim Policy: FAA Review of Solar Energy System Project on Federally Obligated Airports" (see **Appendix H-3** of EIR). Refer to Master Response 6 for more information on the glint and glare analysis conducted in the EIR.

12-7

Comment Summary:

The comment asks if the FAA has commented on the project. The commenter states they have made a Public Records Act request.

Response:

The project applicant has filed 124 FAA Notices of Proposed Construction or Alteration (14 CFR Part 77) and received several aeronautical study results from the FAA for equipment proposed on private land but in the vicinity of the airport. To date, the FAA has responded on 121 of the 124 structures and determined the project structures do not exceed obstruction standards and would not be a hazard to air navigation. The majority were issued starting on March 26, 2019, and the applicant is receiving additional Determinations of No Hazard as of July 22, 2019. For any structures with preliminary locations that would be considered a potential hazard, those structures would be relocated or designed such that they would not be considered a hazard to air navigation by FAA.

In addition, mitigation measure **HM-2** requires the applicant to provide Form 7460-1 Determinations of No Hazard issued by the FAA for qualifying structures prior to building and grading permits.

12-8

Comment Summary:

This comment is the concluding statement of the letter.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

March 16, 2019

County of San Bernardino
Mr. Tom Nievez, Contract Planner
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) PREPARED FOR THE DAGGETT SOLAR POWER PROJECT (STATE CLEARINGHOUSE NO. 2018041007)

Dear Mr. Nievez:

13-1 I was astonished, but not surprised, to read the County's NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT, which fails to recognize the existence of many significant environmental impacts of the proposed Daggett Solar Power project.

13-2 The County has been actively practicing environmental racism in the economically disadvantaged communities of Daggett, Newberry Springs and Yermo. We are the dumping ground for environmentally adverse industry: Think unregulated sewage sludge compost in our sole-source water basin. Think illegal billboard blight on segments of local Interstate highways. Think County disrespect for the Scenic Highway designation of local segments of historic highway 66 (National Trails Highway), by County Code Enforcement's "disappearing" of citizen complaints inre trashed out properties along that scenic highway. Think the County's pretending that the community landfill (in 1940's) in Newberry Springs, along Scenic Route 66, never existed and therefore, there is no need to clean it up. Think the County refusals to enforce its' previously in-force water conservation ordinances, in and around Newberry Springs. Think the County's utter disinterest in the long ago proposed settling basin at Kane Wash, to capture and save approximately 400 acre-feet of precious water, on average per year. Think the County's lack of notice to our Family Center and Community Services District, about available grants and beneficial programs. Think County contempt for our local communities.

13-3 Approximately 25 to 35 letters have been submitted to Mr. Nievez and Ms. Rahhal, the Planning Division Manager, pointing out how the proposed Daggett Solar Project is in violation of County Development Code siting standards beginning a Section 84.29.010, in Chapter 84.29 titled RENEWABLE ENERGY GENERATION FACILITIES.

13-4 How about Section 84.29.035; Required Findings for Approval of a Commercial Solar Energy Facility? Clear violation of (3) (A) & (B). Re (4), don't you

13-5 have professional viewscape analysis that would also fail this project?

13-6 How about (1), which says "The proposed commercial solar energy generation facility is either (A) sufficiently separated from existing communities and existing/developing rural residential areas so as to avoid adverse effects, or (B) of a sufficiently small size, provided with adequate setbacks, designed

March 16, 2019
County of San Bernardino
Mr. Tom Nievez, Contract Planner
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13-6 Cont'd

to be lower profile than otherwise permitted, and sufficiently screened from public view so as to not adversely affect the desireability and future development of communities, neighborhoods and rural residential use."

So, which of the (A) or (B) requirements is this Daggett Solar Project supposedly in compliance with?

13-7

Requirement (C) states: "The siting and design of the proposed commercial solar energy generation facility will be either:

(A) unobtrusive and not detract from the natural features, open space and visual qualities of the area as viewed from communities, rural residential uses, and major roadways and highways,[1] or

(B) located in such proximity to already disturbed lands, such as electrical substations, surface mining operations, landfills, wastewater treatment facilities, etc. that it will not further detract from natural features, open space and visual qualities of the area as viewed from communities, rural residential uses, and major roadways and highways.

Footnote 1: To assist in this determination, photo simulations of the proposed commercial solar energy generation facility as viewed from sensetive receptors (i.e. residences, trails, parks) and public roadways in the area may be required as part of the project's application package.

13-8

SO, Mr, Nievez, did you require said photo simulations from the project applicant? Some photo simulations of project related viewscape interruptions have, I believe, been submitted to you. And how will the applicant meet the 84.29.035 (c) requirements inre existing homes on Minneola Road and Valley Center Road, west of Minneola Road; and what about the vehicle traffic on almost immediately adjacent County designated Scenic National trails Highway (AKA old Highway 66)?

13-9

And what about the Ord Mountain Area of Critical Environmental Concern (ACEC) immediately south of Interstate 40, and perhaps a mile or less south of the proposed solar project, with the Newberry Mountains Wilderness Area being perhaps just two miles south of the proposed solar project? Is someone in charge of the solar project approval process maintaining that the Daggett solar project is in compliance with the above requirements? And if so, on what basis?

13-10

84.29.035 (c) (7) says "The proposed commercial solar generation will minimize site grading, excavating, and filling activities...."

But hasn't the applicant announced that over 5 million cubic yards of earth will be moved about? Isn't this begging for environmental disaster for local communities. There are several professional reports, by the Army, the County,

Page 2

March 16, 2019

County of San Bernardino
Mr. Tom Nievez, Contract Planner
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415

13-10 Cont'd

and others, documenting the proposed solar energy construction site as being in a sand-transport-path.

The County is in possession of all of the following related sand-blow studies:

1--Sand Transport Paths in the Mojave Desert, by Patricia Flanagan, biologist

2--Putting the Air We Breath at Risk, by Patricia Flanagan

3--Aeolian Destabilization Along the Mojave River, Mojave Desert, California: Linkages Among Fluvial, Groundwater, and Aeolian Systems by Julie Laity, Department of Geography, California State University, Northridge, California

4--EVALUATION OF SAND DUNE ACTIVITY AND BLOWING SAND ALONG THE MOJAVE RIVER BETWEEN MINNEOLA ROAD AND HARVARD ROAD NEAR YERMO, SAN BERNARDINO COUNTY, CALIFORNIA, October, 1991, by J&M Land Restoration, Inc.

13-11

5--BLOWING SAND INVESTIGATION, Mojave River Area, Newberry Springs, San Bernardino County Air Pollution Control District, January 22, 1992

6--Newberry Springs Sand Encroachment Study by Tabler & Associates, Consultants in Snow, Dust and Wind Engineering, November, 1991

In spite of all the sand-transport path documentation mentioned above, plus another report commissioned by the U.S. Army in the 1960's, the County approved a 22-acre solar farm disaster on Mt. View Road in Newberry Springs in about 2010. Said project is a fugitive sand nightmare for the residences across the road from it, and a huge community eyesore, disrupting the view of the nearby Newberry Mountains.

Moving along to Section 84.29.035 (c) (8) "The proposed commercial solar energy generation facility will be located in proximity to existing electrical infrastructure, such as transmission lines, utility corridors, and roads, so that:

(A) A minimal ground disturbance and above ground infrastructure will be required to connect to the existing transmission grid.....

13-12

This seems to be better describing potential solar energy development locations at Kramer Junction, Trona, west end of Harper Dry Lake, westerly area of Hinkley, Amboy, etc. Why haven't these preferred ALTERNATIVE solar energy development sites been promoted by the County as environmentally preferable? Isn't the County required to examine environmentally preferrable project location sites? How could the Daggett location be considered environmentally preferrable to any of the above suggested locations?

Re visual issues, ~~has~~ hasn't the applicant proposed a new set of 125-foot tall transmission lines? How will that comport with previously listed requirements to protect valuable viewscapes? How about requiring that said transmission lines be undergrounded?

13-13

Page 3

March 16, 2019

County of San Bernardino
Mr. Tom Nievez, Contract Planner
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13-14 Development Code Section 84.29.035 (c) (9) indicates County Planning staff should have already consulted with the U.S. Fish & Wildlife Service re wildlife linkage issues. I didn't see any references to this issue in the 700 to 1,000 pages received from the County, in response to a Public Records Act request. Did I miss their comments, or didn't you bother to notify them about this solar project?

13-15 Section 84.29.035 (c) (12) requires that the solar energy project NOT cause erosion. But all the six professional studies must lead us to believe that this project will cause soil erosion and fugitive dust (PM-10 & PM 2.5).

13-16 Rather than argue about what NEW PM-10 and PM 2.5 this project will be responsible for, fugitive dust monitors need to be installed at various locations downwind of the proposed 3,500 acre solar energy facility BEFORE construction begins, and then monitored for 2 or 3 years, so that the citizens of this County and affected communities can know the before-and-after fugitive dust measurements. In that way, any fugitive dust impacts on population health can be properly ascribed to nature or to the Daggett Solar Energy project.

13-17 Section 84.29.035 (c) (19) states "The proposed solar energy generation facility will avoid modification of scenic natural formations." Wouldn't the Newberry Mountains to the south and the Calico Mountains to the north and the Cady Mountains to the east, become modified scenic natural formations?

13-18 Section 84.29.035 (c) (20) sets standards for controlling fugitive dust by watering three (3) times daily, during construction. Question: In this high wind area, and related fugitive dust, PM-10 & PM-2.5, and re over 5 million cubic yards of earth, does anyone believe that any applicant would be willing to water that amount of earth 3 times daily??????

13-19 Section 84.29.035 (c) (21) says all grading will cease when winds are over 20 miles per hour. Wouldn't that require the presence of a government employee at all times to enforce that requirement? Will it be a condition of approval?

13-20 Section 84.29.035 requires wind barriers to protect homes within 1/4 mile of the project. Does that mean just now existing homes or any homes built within 1/4 mile of the project, in the future?

13-21 Re condition (29) isn't the U.S. Army utilization of the County owned Daggett airport a stopper for any portions of the proposed solar project within two miles of that airport? The Army has already raised the issue of glint/glare and electro magnetic waves as possible threats to military aircraft, to which I haven't seen any professional response from appliant or the County.

13-22 In addition the 12-7-84 Draft Newberry Springs Community Plan, prepared by the County Planning Department, at NH2.0230 makes a Finding: The Barstow-Daggett Airport and surrounding area is an appropriate site for airport related industrial

13-23 operations. This Daggett Solar project violates that standard. It also violates

Page 4

March 16, 2019

County of San Bernardino
Mr. Tom Nievez, Contract Planner
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San Bernardino, CA 92415

13-23 Cont'd that Findings Action, which says: Provide for interim land uses in the area around the airport which could allow later development of airport related commercial and industrial uses.

13-24 A 3,500 solar energy project facility, which would likely be built and later modified with newer technology for an indefinate lifetime. It hardly qualified as an "interim" use. So the project proposal is actually a threat to the Daggett Airport in more ways than one, to be described below, under FAA concerns, ignored.

13-25 Section 84.29.035 (c) (31) requires an adequate surety (bond) provided for reclamation purposes. The County needs to consider the adverse health ramifications of fugitive dust on downwind residents and damage awards in the courts to project victims, in setting the amount of bond that must be provided, in the event that the ultimate project owner goes bankrupt and the County is left holding the bag.

13-26 Question: Why, apparently, have there been no County Planning Division Review Committee meetings on the Daggett Solar Project, which has been several years in the application process as provided for at Development Code Chapter 86.03, titled ENVIRONMENTAL REVIEW COMMITTEE? Was this lack of environmental review committee meetings, which are open to the public, an attempt to freeze out the concerned citizens of Newberry Springs and Daggett from the project issues?

13-27 FAA concerns: The County General Plan requires the Planning Division to review all development affecting any federal or military installation with the federal entity. It says so in the County General Plan at Goal LU 11 and LU 11.2 and LU 11.3.

And therefore, the County Planning Division is required by law, in regards the proposed siting of the Daggett Solar Power Project, to consult with the Federal Aviation Authority concerning any project proposal in immediate vicinity of the Army utilized Daggett Airport. Said controlling FAA standards are titled "Interim Policy: FAA Review of Solar Energy System Projects on Federally Obligated Airports." See Federal Register, Vol 78, no. 205, Wed., October 23, 2013, p.63276.

To my knowledge the FAA was not notified of the Daggett Airport related project proposal, until just recently, IF at all.

13-28 In that Daggett, Newberry Springs and Yermo are all or in part economically disadvantaged communities, we are targeted by the County and adverse industries for environmentally nasty projects and inattention by the County to community concerns.

Page 5

March 16, 2019

County of San Bernardino
Mr. Tom Nievez, Contract Planner
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

13-29 Thank you for your consideration of these comments on the environmental issues of the proposed 3,500 acre solar energy project in the vicinity of the Daggett Airport.

Sincerely,

Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council.
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc:joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: samuel martinez, director, lafco
cc: san bernardino county planning commission
cc; vickie paulsen, director, newberry springs community services district
cc: robert shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc:robert vasseur, president, newberry springs/harvard property owners assn.
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, director, operations, mojave desert air quality management dist.
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: ms. kate gordon, director, governor's office of planning & research
cc: ms. terri rahhal, manager, planning division, san bernardino county
cc: ms. michelle d. blakemore, county counsel, san bernardino county
cc: supervisor robert lovingood, 1st district, san bernardino county

Page 6

13 CEQA NOW

13-1

Comment Summary:

This comment expresses surprise at the lack of significant environmental impacts identified in the EIR.

Response:

DEIR Section ES, Executive Summary, page ES-3, lists the significant environmental effects that could result from project development. The environmental evaluation summarized in this section concludes that all significant project environmental impacts with the exception of those related to air quality and groundwater can be reduced to a less than significant level. Significant air quality (construction) and hydrology and water quality (groundwater) impacts are discussed in Sections 3.3 and 3.9 of the EIR.

13-2

The comment states that the County has actively practiced environmental racism in the economically disadvantaged communities of Daggett, Newberry Springs, and Yermo. The comment then lists examples of such practices.

Response:

Comment noted for the record. The comment is a statement of opinion and does not raise any environmental concerns specific to this project nor address the adequacy of the EIR.

13-3

Comment Summary:

This comment states that the project is in violation of the County Development Code siting standards under Section 84.29.010, in Chapter 84.29 Renewable Energy Generation Facilities.

Response:

As stated in Section 3.10, Land Use and Planning, of the EIR, the County adopted an ordinance amending Chapter 84.29, to add Renewable Energy Generation Facilities, and Chapter 810.01, Definitions, of the San Bernardino County Development Code, relating to the regulation of commercial solar energy generation facilities (2010 with updates including 2014). The proposed project is subject to requirements and findings in accordance with the ordinance that requires a Conditional Use Permit (CUP). Beginning on page 3.10-20 of the DEIR, Table 3.10-3 presents a detailed analysis of how the project is consistent with the applicable policies of Development Code Section 84.29.035. This table demonstrates the project's consistency with each applicable provision of this section of the Development Code.

13-4

Comment Summary:

The comment states that the project is in violation of (3) (A) & (B) of 84.29.035: Required Findings for Approval of a Commercial Solar Energy Facility.

Response:

Refer to Response 13-3 above and 13-5 below.

13-5

Comment Summary:

This comment asks if a professional viewscape analysis was conducted for the project and asserts that such an analysis would fail.

Response:

Refer to Response 13-3 above regarding Chapter 84.29 Renewable Energy Generation Facilities. As stated in Table 3.10-3 of the EIR, the project is appropriately located and compatible with its surroundings because it is in close proximity to infrastructure historically used for the Coolwater Generating Station and other transportation and industrial and uses, including existing utility-scale solar. The project would be located in an area with few residences. The project design includes setbacks from roads as well as chain-link fencing, and wind fencing at select locations which would partially shield the facility from public view. Therefore, the project will not result in a significant loss of scenic desert qualities that contribute to a vibrant desert tourist economy.

A professional viewscape analysis was performed. Section 3.1, Aesthetics and Visual Resources, of the EIR describes in detail the visual analysis performed for this project. **Appendix B-1** of the EIR contains the visual assessment technical report, and more details about the existing condition, visual simulations, and analysis of impacts are discussed in that report. Additionally, refer to Master Response 7 for more information on the findings and methods used in the visual analysis.

13-6

Comment Summary:

This comment states the project does not conform to requirements of 84.29.035 A and B.

Response:

Refer to Response 13-3 above regarding Chapter 84.29 Renewable Energy Generation Facilities. Photo simulations of the project are included in Section 3.1, Aesthetics and Visual Resources, of the EIR.

13-7

Comment Summary:

The comment requests documentation of how the project is consistent with 84.29.035 (1C) that states solar energy facilities should be located in areas where they are unobtrusive and in proximity to disturbed lands such as electrical substations and mines.

Response:

See Response 13-3 and 13-5 above. The project site is in close proximity to the former Coolwater Generating Station, transportation corridors including the adjacent railroad, and an existing utility-scale solar project.

13-8

Comment Summary:

The comment asks if photo simulations were submitted as part of the project's application. The commenter then asks if the project meets the requirements of 84.29.035 (1C) from Minneola road, Valley Road Canter, west of Mineola Road, and Highway 66.

Response:

Refer to Responses 13-4 and 13-5 above. Section 3.1, Aesthetics and Visual Resources, of the EIR, presents photo simulations of the project. A visual simulation of the view from Minneola and Valley Center Roads was presented on page 3.1-49 of the DEIR. A visual simulation of the project as it would look from Route 66 is presented in the DEIR on page 3.1-53.

13-9

Comment Summary:

The comment questions whether with respect to the County's Development Code requirements the project is compatible the Ord Mountain Area of Critical Concern (ACEC) and Newberry Springs Mountains Wilderness Area.

Response:

The project would have no impact on the Ord Mountain Area of Critical Concern or the Newberry Springs Mountain Wilderness Area and the commenter does not provide evidence to the contrary. As stated under Impact 3.4-4, the project site is not likely to serve as a local habitat linkage for desert tortoise between the Mojave River to the north and the USFWS Critical Habitat designated for the tortoise in the Newberry Mountains Wilderness to the south. The project site is sandwiched between I-15 and I-40; therefore, any such potential corridor that may be used by the desert tortoise across the site is already disrupted. Because of the intervening highways, roadways, and railroad, the active and historic cultivation of 54 percent of the project area, and the very small percentage of the site that qualifies as marginally suitable habitat, the project would not result in significant impacts related to the movements of native resident wildlife

species, nor would it result in significant impacts to potential regional or local migratory wildlife corridors/linkages, nor would it impede the use of native wildlife nursery sites.

13-10

Comment Summary:

The comment states that since the project would involve approximately 5 million cubic yards of grading it would not meet the requirement of 84.29.035 (c)(7).

Response:

Based on the preliminary project design, the project would have resulted in 5 million cubic yards of soil moved during grading. However, based on the updated design, the applicant plans to reduce the amount of grading on the site to the following: Phase 1: 200,000 cubic yards; Phase 2: 200,000 cubic yards; Phase 3: 150,000 cubic yards; and gen-tie: 10,000 cubic yards. Total grading would be approximately 560,000 cubic yards instead of the estimated 5 million cubic yards stated in the Draft EIR. Therefore, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**.

The project design has been revised based on best management practices (BMPs) for solar construction in desert regions. Previous solar equipment required a very level and nearly flat surface for operation since the equipment being used was not designed with the tolerances of modern solar equipment. Today, the tolerances of tracking equipment for uneven ground surfaces are much higher and thus, less intensive site preparation methods can be implemented for a site that is already relatively flat, such as the plate-and-roll method, which compacts the surface without removing topsoil or significantly altering contours. Using these methods allows native vegetation and root systems to remain in the compacted soil which in turn acts as mulch to tighten the soil.

The project site is nearly level and requires minimal grading to allow for installation of the solar panels. Areas comprising the solar field will be prepared by either the mow-and-roll technique for agricultural land or plate-and-roll technique for native vegetation. The project site will be mowed/plated then grubbed to remove any large stumps. A water truck will follow closely alongside the tractor to moisten the soil to minimize dust. The tractor may make several passes to fully compact the vegetation into the top soil, preserving the underground root structure, top soil nutrients, and the seed base. A drum roller will then be used to flatten the surface and compact the soil under the solar field area and even out the surface after the mowing is complete. Limited use of scrapers for micrograding will be employed only where needed to produce a more level surface than can be produced by the plate-and-roll technique (at locations for inverter pads, stormwater basins, etc.). Also, limited grading will be required to construct stormwater detention basins, and to elevate equipment pads, substations, and the O&M building above flood levels where required per the site hydrology study. The project's cut and fill would be balanced on-site and no importing or exporting of materials would be necessary.

Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Also see Master Response 8 for more discussion on disturbance during grading.

13-11

Comment Summary:

The comment states that the County is in possession of six studies related to blowing sand and states that the project will result in significant adverse fugitive dust issues for the community.

Response:

Comment is acknowledged. See Master Response 8, Windblown Materials.

13-12

Comment Summary:

The comment states that the project does not meet 84.29.035 (c) (8) as the project would not be located in proximity to existing electrical infrastructure and other supporting infrastructure to minimize ground disturbance. The comment states that Kramer Junction, Trona, Amboy, Harper Dry Lake, or Hinkley would be better suited for solar power development given the existing infrastructure surrounding the site.

Response:

Per Section 2.0, Project Description, of the EIR, two of the key objectives of the project was to utilize the existing electrical infrastructure and capacity near the retired Coolwater Generating Station. In addition, the project site has existing local regional and state/federal transportation facilities to support project construction and operation. Existing transmission lines in the area and adjacent to the project site further contribute to the site's characteristics that comply with Development Code 84.29.035 (c) (8). Refer to Response 13-3 above regarding Chapter 84.29 Renewable Energy Generation Facilities.

The Section 4.0, Alternatives to the Proposed Project, of the EIR, evaluates an alternative project location at Kramer Junction beginning on page 4-19. Due to that site's issues with the Mojave ground squirrel, the cost and time required for permitting would be substantially increased over the proposed project, making it infeasible for the project applicant. The alternative Hinkley and Harper Lake locations suggested in the comment are respectively about 20 and 30 miles northwest of the project site. These sites are located in areas with higher levels of desert tortoise use and, in the case of Harper Lake, the most likely available sites would be located within areas designated as critical habitat for these species. Trona is about 70 miles to the northwest of the project site. Amboy is about 65 miles southeast of the project site. Alternative sites near Trona and Amboy were not considered in the Alternatives analysis due to a lack of existing infrastructure comparable to the project site as well as other less advantageous environmental characteristics. Overall, feasible alternatives were selected that would have avoided or reduced the project's significant impacts.

13-13

Comment Summary:

The commenter asks if the project would include 125-foot-tall transmission lines and how the lines would impact viewscapes. The commenter also asks if the transmission lines can be placed underground.

Response:

As stated in Section 2.0, Project Description, the project would include segments of aboveground gen-tie transmission lines. The project's gen-tie line poles would generally be up to 120 feet in height to accommodate engineering and safety clearance requirements; however, some poles may need to be up to 159 feet in height at locations where the lines would cross over the existing 60-foot high-voltage transmission lines in the area, while other poles may be considerably shorter than 120 feet. Additionally, some sections of the gen-tie line may be placed underground where necessary, particularly in the areas of the Barstow-Daggett Airport and the Los Angeles Department of Water and Power (LADWP) right-of-way, thereby eliminating the need for poles in those sections. The final gen-tie alignments and associated pole locations and heights will not be known until the proposed project's final engineering stage. The gen-tie lines are included in the visual analysis in the EIR, as described in Impacts 3.1-2 and 3.1-3 of the EIR. Refer to Master Response 7 for more information on the methods used for the visual analysis in the EIR. Undergrounding the gen-tie for its entire distance can result in significant environmental impacts including potential safety issues where the lines cross existing infrastructure and is considered to be unnecessary given the other aboveground transmission lines in the vicinity.

13-14

Comment Summary:

The commenter states the County Planning staff is required to consult with the U.S. Fish and Wildlife Services (USFWS). The commenter questions whether the USFWS was consulted because their correspondence was not included in the previous Public Records Act request.

Response:

The project applicant consulted with the USFWS prior to conducting field surveys and USFWS's comments and recommendations were incorporated into the biological survey plan. The applicant discussed the biological resources survey plan with USFWS staff and then corresponded via email (January 30, 2018) regarding specific species issues. Also refer to Letter 2A Responses above.

13-15

Comment Summary:

The comment states that Section 84.29.035 requires that a solar project not cause erosion. The commenter asserts that the project would cause erosion and fugitive dust (PM_{10} and $PM_{2.5}$).

Response:

Refer to Master Responses 1 and 8 regarding fugitive dust and the measures incorporated into the project to minimize off-site emissions. As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to soil erosion, fugitive dust, and other air quality impacts during construction, operations, and decommissioning of the project.

13-16

Comment Summary:

The comment states that two air quality monitors should be installed in various locations downwind of the project and record data for multiple years to establish a baseline prior to project development.

Response:

The MDAQMD maintains monitors that are calibrated, maintained, and standardized based on many scientific factors. Placement of individual monitors, not managed by MDAQMD, in specific locations is not a methodology used for collecting scientific data since there are many confounding factors that would be impossible to control. If monitors were placed at the project site, it would not be possible to pinpoint the source of fugitive dust since under existing conditions sand moves through the entire area including the project site. In addition, after construction, the facility will not create any significant fugitive dust and thus, long-term, site specific fugitive dust monitoring is not warranted. See also Master Reponse 4 or Monitoring Stations.

13-17

Comment Summary:

The comment cites Section 84.29.035 (c) (19) and asks if the scenic formations of the Newberry Mountains, Calico Mountains, and Cady Mountains would be modified as result of the project.

Response:

The project would not modify any of the above-mentioned natural scenic formations.

13-18

Comment Summary:

The comment questions if the applicant will comply with a requirement to water disturbed areas three times a day during construction.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. All mitigation

measures would be enforceable. The applicant will be required to comply with all mitigation measures that become enforceable conditions of approval. The County will have the authority to revoke the project's use permit if the applicant fails to comply with these measures. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts. Refer to Master Response 1 for a complete response regarding this topic.

13-19

Comment Summary:

The comment states that the mitigation measure that states construction must halt during high wind events would require a government monitor to ensure construction actually stopped.

Response:

In addition to the mitigation measures **AIR-1** and **AIR-3**, the project will comply with the County Development Code dust control measures included in Chapter 84.29, Renewable Energy Generation Facilities. These dust control measures include ceasing all clearing, grading, earth moving, and excavation activities when winds are greater than 20 miles per hour, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property. The applicant will be required to comply with all mitigation measures that become enforceable conditions of approval. The County will have the authority to revoke the project's use permit if the applicant fails to comply with these measures.

13-20

Comment Summary:

The comment questions if wind barriers are required for just existing homes within .25 mile of the project or if future homes that may be constructed within .25 mile of the project would also be afforded wind fence protection.

Response:

The project will not be required to mitigate (i.e., wind fencing) for impacts to not yet known or built future development. CEQA requires an evaluation of the project's impacts on the existing physical environment. The project would comply with all CUP and EIR measures requiring site stabilization and minimization of fugitive dust.

13-21

Comment Summary:

The commenter states that the Army has raised concerns with the project due to potential glint/glare and electromagnetic waves. The commenter states that the commenter has not seen correspondence from the Army from the applicant or County.

Response:

See Response 12-2 above and the DEIR's **Appendix H-3**, Airport Safety and Compatibility Technical Memorandum, of the DEIR, that includes meeting notes covering Fort Irwin consultations which have been ongoing since January 2017, including a meeting on June 22, 2018. Refer to Master Response 6 for more information on the glint and glare analysis conducted in the EIR. Additionally, the project is being designed in conformance with ACLUP policies and with input received from Airport and Fort Irwin Training Center staff (see Section 3.8, Hazards and Hazardous materials of the EIR). See Appendix M, Solar Power Installations Effects on Avionics, in the Final EIR, for more information on potential impacts regarding electromagnetic waves. Therefore, issues that may have been raised by the military regarding glint/glare and electromagnetic waves have been addressed.

13-22

Comment Summary:

The comment states that the Newberry Springs Community Plan designates the Barstow-Daggett Airport and surrounding area for airport-related industrial operations.

Response:

The Draft Newberry Springs/Harvard Community Plan from 1984 was not referenced in the EIR because it is not an adopted plan. The DEIR evaluates and concludes that the proposed project is in conformance with the County General Plan, applicable County Development Code and ACLUP Policies.

13-23

Comment Summary:

The comment states that the project violates the Finding Action because the project is not an interim land use that allow for future development of airport-related uses.

Response:

The Draft Newberry Springs/Harvard Community Plan from 1984 was not referenced in the EIR because it is not an adopted plan. The DEIR evaluates and concludes that the proposed project is in conformance with the County General Plan, applicable County Development Code and ACLUP Policies.

13-24

Comment Summary:

The comment disagrees with the statement that the project is an interim land use.

Response:

The commenter disputes the interim nature of the project but no requirement exists that only interim uses be installed. The comment does not present information that materially affects the methods or findings of the EIR.

13-25

Comment Summary:

The comment states that 84.29.035 (c) (31) requires the County to collect an adequate surety bond to pay for reclamation purposes. The comment states that the surety bond would be used to pay damages if the project owner goes bankrupt.

Response:

Comment noted. The County will require the applicant to comply with all required site reclamation requirements, including bonding. The commenter does not present information that materially affects the methods or findings of the EIR.

13-26

Comment Summary:

The comment asks why the County Planning Division Review Committee has not held meetings to discuss the proposed project with the community.

Response:

Comment noted. A public meeting was held by the County to accept comments on the Scope of Work for the project's EIR. That meeting was held in Daggett on April 4, 2018. CEQA guidelines allows the Lead Agency to go directly to EIR preparation without conducting Initial Study or committee meetings. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

13-27

Comment Summary:

The comment states that the project is required to consult with the Federal Aviation Authority (FAA) regarding any project proposal in the immediate vicinity of the Daggett Airport.

Response:

The project is being designed in conformance with ACLUP policies and with input received from Airport and Fort Irwin Training Center staff (see Section 3.8, Hazards and Hazardous materials of the EIR). Further, mitigation measure **HM-2** requires the applicant to provide a Determination of No Hazard issued by the FAA prior to building and grading permits.

The project applicant has filed 124 FAA Notices of Proposed Construction or Alteration (14 CFR Part 77) and received several aeronautical study results from the FAA for equipment proposed on private land in the vicinity of the airport. To date, the FAA has responded on 121 of the 124

structures and determined the project structures do not exceed obstruction standards and would not be a hazard to air navigation. The majority were issued starting on March 26, 2019, and the applicant is receiving additional Determinations of No Hazard as of July 22, 2019. For any structures with preliminary locations that would be considered a potential hazard, those structures would be relocated or designed such that they would not be considered a hazard to air navigation by FAA.

13-28

Comment Summary:

The comment states the project is located in an economically disadvantaged community.

Response:

Comment noted for the record. The EIR is consistent with the guidance provided in Section 15131 of the CEQA Guidelines which states that economic or social effects of a project shall not be treated as significant effects on the environment, and the focus of the analysis shall be on the physical changes.

13-29

Comment Summary:

This is the concluding statement of the letter thanking the County for considering these comments.

Response:

Comment noted for the record.

March 19, 2019

Mr. Tom Nieves, Contract Planner
County of San Bernardino
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE DAGGETT SOLAR PROJECT, ON ABOUT 3,500 ACRES, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS. STATE CLEARINGHOUSE NO. 2018041007.

Dear Mr. Nievez:

14-1 We have previously brought your attention to the fact that our local segment of National Trails Highway (AKA historic route 66) is a protected scenic desert route in the County General Plan. See Page VI-15. General Plan Goal OS 5 states that the County will maintain and enhance the visual character of scenic routes in the County.

14-2 Question #1: So why does the March 15th notice about the availability of the project EIR, in its' Project Location Exhibit 1 map, which shows all major infrastructure, FAIL to identify National Trails Highway, about 1/4 mile from the solar project, as being a County designated scenic route?

14-3 Question #2: Has anyone at the County, including yourself, notified Michael Baker, of the importance of that County Scenic Route designation? Doesn't General Plan Goal OS 5 say that the County will maintain and enhance the visual character of scenic routes in the County? Is it the County's opinion that 3,500 acres of 20-foot tall solar panels and 125-foot tall power transmission lines will enhance the visual character of the subject scenic route?

14-4 OS 5.2 has requirements for development along scenic corridors. Are those General Plan requirements going to be "disappeared"? Just as the legally required siting requirments "disappeared" for the monster 22-acre solar project in Newberry Springs, on Mt. View Road, in about 2010.

14-5 Question #3: Any comment about other industrial scale solar projects which the County is reaching out for, also on scenic route 66, such as Daggett Solar 66 and another lovely project on APN 0516-011-04 & 0516-012-02?

Our humble suggestion is that the major players in these solar projects in and around Newberry Springs & Daggett, have their lawyers take a look at personal liability in Title 42, Section 1983, et seq.

14-6 QUESTION #4: If the Public Utility Commission doesn't require any more solar energy production for the forseeable future, and that excess daytime generated power is already being shipped out of state, what exactly is the public or ratepayer benefit of the proposed Daggett Solar Energy Project?

14-7 The County has been waging environmental war against local communities for the past 40 years. Without penalty. Things are about to change!

Sincerely,

Robert Berkman
President, CEQA-NOW



1.

March 19, 2019

Mr. Tom Nievez, Contract Planner
County of San Bernardino
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis saharun, los angeles times
cc: sammy roth, los angeles times
cc: bridget botelho, director of communications, mother jones
cc: samuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: robert vasseur, newberry springs/harvard property owners association
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, director, operations, mojave desert air quality management district
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: terri rahhal, manager, planning division, san bernardino county
cc: michelle d. blakemore, county counsel, san bernardino county
cc: supervisor robert lovingood, 1st district, san bernardino county

2.

14 CEQA NOW

14-1

Comment Summary:

This comment states that Historic Route 66 is a protected scenic desert route in the County General Plan.

Response:

General Plan policies as they relate to Route 66 are discussed in Section 3.1, Aesthetics and Visual Resources, beginning on page 3.1-9. On page 3.1-56, the DEIR states that Routh 66 is a County-designated scenic route. The proposed project would convert active and fallow agricultural land that contributes to the scenic qualities of views from Route 66. From Route 66 (KOP 3, Exhibit 3.1-7, and KOP 6, Exhibit 3.1-11), the solar arrays and fencing would be visible in the foreground and middle ground, north of the railway. From KOP 3, the solar arrays and fencing would be visible in the immediate foreground and middle ground. From KOP 6, the solar arrays would replace the view of an irrigated pasture, also in the immediate foreground and middle ground. The new gen-tie structures and substation would be visible behind the solar array from KOP 6 in the middle ground and just west of Barstow-Daggett Airport. Solder Mountain would continue to be visible in the background. From KOP 3, the gen-tie structures would be barely discernible at this distance in the middle ground and would blend in with the existing lattice structures in the existing transmission corridor farther north. The project would add to the existing visual encroachments in the viewshed, and the conversion of landscape at the solar site would be less apparent and set back from the highways.

Converted landscape and project facilities may be visible to motorists traveling on Route 66; however, project features would be indistinct at distances greater than two miles. Views of the surrounding mountains and desert landscape from the highways would still be experienced due to the setback between the highways and the project facilities. Given the low existing scenic quality of the area based on the numerous existing visual encroachments, and the low to moderately low degree of visual change resulting from the solar facility, the impact on scenic resources from a scenic highway would be less than significant. Therefore, the project would not significantly impact the scenic route designation or conflict with the County General Plan.

14-2

Comment Summary:

This comment asks why the Historic Route 66 was not labeled in the exhibit that was included in the Notice of Availability (NOA).

Response:

Historic Route 66 is labeled on Exhibit 1 – Project Location that was included in the NOA. The highway is labeled with the highway marker and the title ‘National Trails HWY’.

14-3

Comment Summary:

The commenter asks if the project is in conflict with Goal OS 5 and if the project would enhance the visual character of the scenic route.

Response:

The project would not conflict with Goal OS 5. Refer to Response 14-1 regarding impacts to Historic Route 66.

14-4

Comment Summary:

This comment asks if the project meets the requirement of OS 5.2.

Response:

The project would not conflict with Goal OS 5.2. Refer to Response 14-1 regarding impacts to Historic Route 66.

14-5

Comment Summary:

This comment asks the project applicant to look at personal liability in Title 42, section 1983, et seq.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

14-6

Comment Summary:

This comment states that the Public Utilities Commission doesn't require additional energy production and that the excess energy gets shipped out of state.

Response:

The EIR is consistent with the guidance provided in Section 15131 of the CEQA Guidelines which states that economic or social effects of a project shall not be treated as significant effects on the environment, and the focus of the analysis shall be on the physical changes. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

14-7

Comment Summary:

This comment states that the County has been waging environmental war against the local community.

Response:

Comment noted for the record. The EIR is consistent with the guidance provided in Section 15131 of the CEQA Guidelines which states that economic or social effects of a project shall not be treated as significant effects on the environment, and the focus of the analysis shall be on the physical changes. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

March 27, 2019

Mr. Tom Nievez, Contract Planner
San Bernardino County
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

Ms. Michelle D. Blakemore
County Counsel, San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

Ms. Terri Rahhal, Director
Land Use Services Department
& Planning Division Manager
San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) PREPARED FOR THE DAGGETT SOLAR ENERGY PROJECT, APPROXIMATELY 3,400 ACRES IN SIZE, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT WHICH IS UTILIZED BY THE UNITED STATES ARMY AT FORT IRWIN, CALIFORNIA (STATE CLEARINGHOUSE NO. 2018041007)

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

15-1 When you read through the following questions and comments, we ask that you be mindfull of your responsibilities dictated in the County General Plan and the County Development Code at Chapter 84.29, titled Renewable Energy Generation Facilities. The County General Plan Goals and Policies applicable to the Daggett Solar Energy proposal have been cited in previous letters.

Newberry Springs is identified as severely economically disadvantaged in it's easterly areas. While the westerly area is populated by wealthy farmers and residents at recreational lakes. They are mobile because of their affulence. They can afford to leave the area if and when the serious adverse environmental impacts of the Daggett Solar Energy Project are sustained by lower income residents.

15-2 That the County obviously encouraged the subject project, which is a clear and present danger to this community, is very discouraging, but not surprising. We presume that the County will approve the subject project, without regard for the law and without regard for the good citizens of Newberry Springs.

San Bernardino County has a sorry reputation, being listed as one of the three most corrupt governments in the United States in the February, 2017 issue of The Verdict, published by a non-profit good-government organization in Washington, D.C.

We are anticipating County skulduggery in processing the subject application, and we anticipate filing a civil rights lawsuit in federal court under Title 42, Section 1983 et seq. And we anticipate prevailing in that lawsuit and we anticipate that the INDIVIDUALS sued will pay our legal fees under Section 1988. Some are suggesting, perhaps after the civil rights lawsuit is filed, that the governor be requested to declare an emergency in San Bernardino County and assume control, by appointing an administrator.

1.

March 27, 2019

Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel
Page 2

Our comments are as follows, in no particular order; inre the DEIR & appendices:

15-3 1--Why is Kramer Junction, apparently, the only alternative site to the Daggett site, considered? Who made the decision NOT to consider the alternative sites at Harper Dry Lake region, westerly Hinkley, Amboy, Trona, and the flatlands between Adelanto and El Mirage? And on what basis were those areas deleted from consideration?

15-4 2--We see a reference to a 2018 Daggett Community Plan/Action Guide in Section 6.0 (Preparers and References), but we can't find any reference to the Draft Newberry Springs/Harvard 12-7-84 Community Plan, which would have required only airport-related industry around Daggett Airport and established three safety zones around said airport--now being ignored inre the Daggett Solar Energy application, close-in to said airport.

15-5 The history of the Newberry Springs/Harvard Community Plan has been made to "disappear". To our knowledge, it is the only Draft Community Plan ever, in the entire history of California, to be completed by staff, but never adopted. The reason it was not adopted is that the County environmental analyst had the temerity to state on page 11 of the Draft EIR that the raising of alfalfa was not sustainable in the plan area. (SCH 84041614:February, 1985).

15-6 Alfalfa farmers have a strong lobby in San Bernardino County. They can do no wrong. As a matter of fact, it just so happens that the Daggett Solar Energy project proposal is largely proposed on existing farm land, mostly alfalfa farm land. What a coincidence! And the rich get richer.

Some cynics suggest the Daggett Solar Energy project was dreamed up by the local, millionaire alfalfa farmers. You would know the answer to that one.

15-7 3--County government has a history of deliberate environmental abuse of our small, rural, economically disadvantaged community of Newberry Springs and surrounding areas. We lack political power. Hence, we get alfalfa growers in an overdrafted, sole-source water basin. We get completely unregulated spreading of sewage sludge compost. We get illegal billboards in non-business districts, along Interstate 15 and Interstate 40. We get ignored when making requests to police the local section of historic and County designated Scenic Route National Trails Highway. The County seems to take some perverse pleasure in watching the trash buildup along our "scenic" and historic Route 66. Although "old-timers" remember the County-sanctioned landfill here on Route 66, in Newberry Springs, on then railroad owned 46 acres, the County is pretending that they have no knowledge of that history, even though they have a "No Dumping" sign thereat. Ho-hum.

March 27, 2019

Mr. Tom Nieves, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel
Page 3

15-8 4--The history of environmental issues ignored at the 22-acre solar energy project approved by the County around 2010, on Mt. View Road in Newberry Springs, in a documented Sand-Transport-Path, is a taste of what could happen, re fugitive sand (PM 10 & PM 2.5) issues, if about 3,400 acres of industrial solar energy development is County approved in the exact same Sand-Transport-Path. Take a look at the neighbors' property to the east. We hear they have engaged an attorney.

15-9 5--Our understanding is that the DEIR for the Daggett Solar Energy Project is 559 pages and the appendices are MORE than 6,891 pages, including maps, etc. Based on the volume of data, we think it fair to ask that the DEIR comment period be extended for another 45-days, at a minimum.

15-10 6--Thank you for the list of preparers of the DEIR at Section 6.0. That will be a starting off point for our "discovery" process.

15-11 7--Once we and other concerned groups and citizens settle on an attorney, we can start looking into all the "insignificant impacts" as determined in the DEIR.

15-12 In closing, may we say that this whole solar energy proposal and review process somehow reminds us of Dante's INFERNO, as we place the principal players in the nine circles of hell, but only in our imaginations, of course.

Sincerely,

Robert Berkman
CEQA-NOW, President

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: samuel martinez, director, lafco
cc: san bernardino county plannig commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorria stealy, president, mojave communities conservation cooperative
cc: robert vasseur, president, newberry springs/harvard property owners assn.
cc: ted stimpfel, newberry springs community alliance

March 27, 2019

Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel
Page 4

cc: gavin erasmus, phd, attorney
cc:steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, director, operations, mojave desert air quality management dist.
cc: sammy roth, los angeles times
cc: bridget botelho, director of communications, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: supervisor robert lovingood, 1st district, san bernardino county

15 CEQA NOW

15-1

Comment Summary:

This comment states the reader of the letter should be mindful of the County General Plan and County Development Code Chapter 84.29.

Response:

Comment noted for the record.

15-2

Comment Summary:

This comment states that the proposed project would be located in a severely economically disadvantaged community. The comment states that the County will not treat the community fairly in approving the proposed project over the objections of many community members.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

15-3

Comment Summary:

This comment asks why other sites, such as Harper Dry Lake, westerly Hinkley, Amboy, Trona, and the flatlands between Adelanto and El Mirage, were not considered in the EIR.

Response:

As stated in Section 4.0, Alternatives to the Proposed Project of the EIR, Section 15126.6(a) of the CEQA Guidelines requires that an EIR describe a range of reasonable alternatives to the project, or a range of reasonable alternatives to the location of the project, that could feasibly attain the basic objectives of the project. An EIR does not need to consider every conceivable alternative project, but it does have to consider a range of potentially feasible alternatives that will facilitate informed decision-making and public participation.

Section 4.0, Alternatives to the Proposed Project, of the EIR, evaluates an alternative project location at Kramer Junction beginning on page 4-19. Due to the project site's issues with the Mojave ground squirrel, the cost and time required for permitting would be substantially increased over the proposed project, making it infeasible for the project applicant. There are many factors that are considered when selecting a site for solar power development. The alternative Hinkley and Harper Lake locations suggested in the comment are respectively about 20 and 30 miles northwest of the project site. These sites are located in areas with higher levels of desert tortoise use and, in the case of Harper Lake, the most likely available sites would be

located within areas designated as critical habitat for these species. Trona is about 70 miles to the northwest of the project site. Amboy is about 65 miles southeast of the project site. Alternative sites near Trona and Amboy were not considered in the Alternatives analysis due to a lack of existing infrastructure comparable to the project site as well as other less advantageous environmental characteristics. With respect to the flatlands between Adelanto and El Mirage, about 45 miles to the southwest of the project site, availability of suitable land is unknown and very little resources information exists with which to conduct an alternatives evaluation. Additionally, the applicant does not have the interconnection queue position at Adelanto or at El Mirage that it has at the current project site near the Coolwater facility which is based on the repowering of the former Coolwater plants fossil-fuel fired generation capacity. Overall, feasible alternatives were selected that would have avoided or reduced the project's significant impacts.

As further indicated in Section 4.0, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project. Also, the goal of the project is to utilize the retired fossil fuel-based interconnection capacity at the Coolwater substations. These other sites would not be feasible for this purpose.

15-4

Comment Summary:

This comment asks why the Newberry Springs/Harvard Community Plan was not referenced in the EIR.

Response:

The Newberry Springs/Harvard Community Plan was not referenced in the EIR because it is not an adopted document.

15-5

Comment Summary:

This comment states that the Newberry Springs/Harvard Community Plan was completed by County staff, but never adopted.

Response:

The Newberry Springs/Harvard Community Plan was not referenced in the EIR because it is not an official adopted document.

15-6

Comment Summary:

This comment states that local alfalfa farmers have a strong lobby in San Bernardino County.

Response:

Comment noted and entered into the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

15-7

Comment Summary:

This comment states that the County has a history of deliberate environmental abuse on the small, rural, economically disadvantaged community of Newberry Springs and surrounding areas. The comment then lists some examples of the perceived environmental abuse.

Response:

Comment noted for the record. Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment." (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not raise any environmental concerns about this project specifically nor address the adequacy of the EIR.

15-8

Comment Summary:

This comment references a 22-acre solar project on Mt. View Road in Newberry Springs. The commenter states that the proposed project would also be located in the same 'Sand-Transport-Path'. The commenter states that the project would result in fugitive dust.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts. Refer to Master Responses 1 and 8 for more details regarding this topic.

15-9

Comment Summary:

The comment requests that the public comment period to be extended 45 days due to the length of the document.

Response:

Comment noted. The document is comprehensive and detailed to provide adequate information to decision-makers and stakeholders including the public. The 45-day review period is specified by CEQA. A comprehensive document is not a sufficient reason to warrant extension of the review period. Furthermore, the comment provided multiple letters within the 45-day review period, indicating they were properly notified and had time to submit comments. Pursuant to CEQA Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of CEQA and no unusual circumstances are present that would warrant extending the comment period.

15-10

Comment Summary:

This comment appreciates that a list of EIR preparers was included in Section 6.0, Preparers of the EIR.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

15-11

Comment Summary:

This comment states that CEQA Now and other groups are going to hire an attorney to look into insignificant impacts listed in the EIR.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

15-12

Comment Summary:

This comment states that the project's review process is like Dante's inferno.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

March 30, 2019

Mr. Tom Nievez, Contract Planner
San Bernardino County
385 North Arrowhead Ave, First Floor
SAn Bernardino, CA 92415

Ms. Michelle D. Blakemore
County Counsel, San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

Ms. Terri Rahhal, Director
Land Use Services Department
& Planning Division Manager
San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

SUBJECT: MORE COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) PREPARED FOR THE DAGGETT SOLAR ENERGY PROJECT, APPROXIMATELY 3,400 ACRES IN SIZE, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT, WHICH IS UTILIZED BY THE UNITED STATES ARMY AT FORT IRWIN, CALIFORNIA (STATE CLEARINGHOUSE NO. 2018041007)

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

16-1 1--Re water use by utility-scale solar projects, if you nose around in Farm Report, it says utility-scale projects in the 230 to 550-megawatt range can require up to 1.5 billion liters of water for dust control during construction and another 26 million liters annually for panel washing during operation.

Are those numbers about the same as the applicant is suggesting? If there is a disparity in projected water use, can you get an expert 3rd party opinion?

16-2 2--While it seemed like someone down there wanted to ignore the airport safety standards for the Daggett Airport in the Draft Newberry Springs/Harvard Community Plan, dated 12/7/84, which was never adopted due to heavy pressure from water guzzling alfalfa farmers and high virtue billboard companies, we found another document, relative to airport safety, that the alfalfa farmers and billboard companies did not object to.

16-3 Said document, titled AIRPORT COMPREHENSIVE LAND USE PLAN, BARSTOW-DAGGETT AIRPORT, by Planning Department, San Bernardino County, May, 1992, is relevant to the Daggett Solar Energy Project being considered for approval. It has 45 pages and we invite you to please read it. (Not sure if it is in the DEIR appendices).

16-4 There are three safety zones referenced in the County Airport Plan. On page 33 it says Utilities are clearly unacceptable in Safety Review Area 1 and 2. Would that have any effect on a proposed 159-foot tall line of transmission towers proposed? Utilities might be acceptable in Safety Review Area 3, under certain conditions. (Page 34).

16-5 Page 1 says the plan shall provide for the orderly growth of a public airport and the area surrounding the airport and safeguard the general welfare of inhabitants within the vicinity of the airport and the public in general.

1.

March 30, 2019

Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

16-5 Cont'd But the Draft 1984 Newberry Springs/ Harvard Community Plan Draft was requiring that only airport related development occur around Daggett Airport.

16-6 We fail to see how 3,400 acres of industrial solar panels, which because of air dynamics, cause wind speeds to increase, will provide for the safety and welfare of the surrounding community and residents and workers.

16-7 We have suggested that the reviewing staff read the six or seven wind/fugitive dust & sand studies that focus on the project area and surrounding areas. The project sits in a documented sand-transport-path, which will increase fugitive dust/sand to downwind residents in Newberry Springs, with people being subjected to increased levels of PM 2.5 and PM 10.

16-8 This is a clear and obvious health hazard that does NOT need to happen. If you don't believe it, then prove it by establishing base line air quality monitors downwind in Newberry Springs for at least two years before any earth at the project site is disturbed. Aren't we talking about 5.9 million cubic yards?

16-9 3--Page 4 of the above referenced airport plan for Daggett Airport says an airport master plan and environmental assessment is being prepared in an effort to plan for future development of the airport. Did that plan get completed? If so, how would it view a proposal to surround the airport on three sides with glint/glare solar panels and electromagetic waves?

16-10 The same report refers to possible future expansion possibilities. Wouldn't that be a higher priority than supporting a solar project that creates safety issues for the airport? Didn't the Army once support airport expansion?

16-11 Page 2 says: they intend to promote compatible land uses in the area influenced by airport operations, and to safeguard the general welfare of vicinity in habitants and to safeguard the general welfare of aviation activities by imposing appropriate height restrictions for protection of airport activities....

16-12 4--Who, if anyone, on the review team at the County Planning Division, has read the May, 1992 County Barstow-Daggett Airport Plan?

16-13 5--And who, if anyone, has read the Department of Transportation, Federal Aviation Administration Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports? See Page 63276 in the Federal Register, Vol. 78, No. 205/Wednesday, October 5, 2013 Notices?

Is this Daggett Solar Project claimed to be in compliance with those FAA standards?

16-14 6--Are the trashed out houses at the Daggett Airport, there for many years, an indication of the County's disrespect for the adjacent communities of Newberry Springs and Daggett, economically disadvantaged and without the political power or influence to have that eyesore trashed out housing cleaned up--just like a lot of other trashed out properties in the two communities that the County refuses to address?

2.

March 30, 2019

Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

16-15 7--Has the County yet determined the amount of bonding that the project applicant should be required to post? Aside from the obvious health
16-16 hazards, what will it cost to compensate victims of an air crash caused by the solar energy issues of glint/glare or electromagnetic waves?

16-17 Re PM10 & PM 2.5 related health issues, the bonding should be large enough to cover huge court compensation awards, such as the $80 million jury award to a Roundup weed-killer chemical victim.

16-18 8--Although the County hasn't yet been sued over the Mt. View Road environmental disaster and fiasco, which was somehow approved by the County in about 2010, that stretch of good luck may be coming to an end. (RE the 22-acre solar project).

Best wishes,

Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: samuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: robert vasseur, president, newberry springs/harvard property owners assn.
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, director, operations, mojave desert air quality management dist.
cc: sammy roth, los angeles times
cc: bridget botelho, director of communications, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: supervisor robert lovingood, 1st district, san bernardino county

3.

16 CEQA NOW

16-1

Comment Summary:

This comment states that according to the Farm Report, utility scale solar projects between 240 and 550 MW require approximately 1.5 billion liters of water for dust control during construction and another 26 million for panel washing. The comment asks if the County can hire a third-party expert to confirm the expected water usage for the proposed project.

Response:

Section 3.9, Hydrology and Water Quality and **Appendix I**, of the EIR, provides professional assessment of the project's water use and impacts. As stated in Section 3.9, the project is estimated to require approximately 450 AFY for approximately 3.5 years for a total of 1,800 acres (during construction) and would reduce water use to 25 AFY (during project operation). This would result in a reduction of need for production at the project site of more than 164,000 AF over 20 years. Refer to Master Response 5 for more information on groundwater usage.

16-2

Comment Summary:

This comment states that the Newberry Springs/Harvard Community Plan contained airport safety standards, but the plan was never adopted.

Response:

The Newberry Springs/Harvard Community Plan was not referenced in the EIR because it is not an official adopted document.

16-3

Comment Summary:

This comment references the Airport Comprehensive Land Use Plan (ACLUP) for the Barstow-Daggett Airport that was developed by the County's Planning Department.

Response:

Section 3.8, Hazards and Hazardous Materials and **Appendix H-3**, Airport Safety and Compatibility Technical Memorandum, of the EIR provide an evaluation of the project's compatibility with the ACLUP. The comment does not raise any environmental concerns nor address the adequacy of the EIR. Comments regarding the ACLUP are responded to in the comments below.

16-4

Comment Summary:

This comment states that the ACLUP finds it unacceptable to place utilities in Safety Review Areas 1 and 2. The commenter then asks if a 159-foot-tall transmission line would be accepted in the areas. The commenter states that utilities may be placed in Safety Review Area 3 under certain conditions.

Response:

As stated in Section 3.8, Hazards and Hazardous Materials of the EIR, the project is being designed in conformance with ACLUP policies and with input received from Airport and Fort Irwin Training Center staff. The applicant is required to obtain a Form 7460-1 Determination of No Hazard from the Federal Aviation Administration (FAA) for qualifying structures prior to issuance of building and grading permits from the County and such FAA determinations have now been made. Development of the project in the runway protection zone would be in accordance with guidance for Safety Review Areas, and in consultation with the FAA and Airport Land Use Commission (ALUC). FAA review and issuance of a Determination of No Hazard will require the project applicant to incorporate final design modifications and safety features (e.g., maximum height, clearance requirements) in accordance with the Obstruction Evaluation (Tetra Tech 2018b; see Attachment 3 of **Appendix H-3**).

In addition, project facilities including solar panels, fences, and transmission line poles within the Runway Protection Zone (RPZ) or Safety Area 1 would be reviewed by the FAA for compatibility with airport operations. If the FAA finds that development within the Safety Areas does not pose a hazard to airport activities based on height, proximity to runways, and other air navigation safety factors, the FAA may issue a Determination of No Hazard, which gives the applicant approval to proceed with the project as designed.

The project applicant has filed 124 FAA Notices of Proposed Construction or Alteration (14 CFR Part 77) and received several aeronautical study results from the FAA for equipment proposed on private land in the vicinity of the airport. To date, the FAA has responded on 121 of the 124 structures and determined the project structures do not exceed obstruction standards and would not be a hazard to air navigation. The majority were issued starting on March 26, 2019, and the applicant is receiving additional Determinations of No Hazard as of July 22, 2019. For any structures with preliminary locations that would be considered a potential hazard, those structures would be relocated or designed such that they would not be considered a hazard to air navigation by FAA.

Potential impacts to airport operations and public safety would be minimized to a less than significant level with implementation of mitigation measure **HM-2** by requiring the applicant to provide the County with a Determination of No Hazard from the FAA prior to issuance of building or grading permits. Therefore, the project would be consistent with ACLUP policies.

16-5

Comment Summary:

This comment states that the Newberry Springs/Harvard Community Plan Draft requires only airport-related development around Daggett Airport.

Response:

The Draft Newberry Springs/Harvard Community Plan was not referenced in the EIR because it is not an official adopted document.

16-6

Comment Summary:

This comment states that the proposed project would cause an increase in wind speeds and not provide for the safety and welfare of the surrounding community and residents and workers.

Response:

There is no evidence provided that the project would cause an increase in wind speeds. Refer to Master Response 8 for a statement regarding the wind speeds in the area.

16-7

Comment Summary:

This comment states that the proposed project is located within the sand-transport-path, which will increase fugitive dust/sand to downwind residents in Newberry Springs.

Response:

Refer to Master Response 8 for a discussion of the site and area conditions as they relate to sand transport paths. According to the general sand transport pathway descriptions and map of sand areas included in the Desert Renewable Energy Conservation Plan, the eastern parcels of the project, or approximately 30 percent of the project site, is part of a sand transport pathway[8] (see **Appendix D-2** of the EIR).

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required.

[8] Desert Renewable Energy Conservation Plan, Figure H-3 (Aeolian and Sand Transport Areas); https://drecp.databasin.org/maps/42ad2936223d480fbf658557b9f16d03

16-8

Comment Summary:

This comment states that downwind air quality monitoring stations should be installed and operational for at least 2 years in order to collect an accurate baseline before the project can be approved.

Response:

An adequate baseline for air quality impacts is provided in the EIR. Refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis. The MDAQMD maintains monitors that are calibrated, maintained, and standardized based on many scientific factors. Placement of individual monitors, not managed by MDAQMD, in specific locations is not a methodology used for collecting scientific data since there are many confounding factors that would be impossible to control. If monitors were placed at the project site, it would not be possible to pinpoint the source of fugitive dust since under existing conditions sand moves through the entire area including the project site. In addition, after construction, the facility will not create any significant fugitive dust and thus, long-term, site specific fugitive dust monitoring is not warranted. See also Master Response 4 on Monitoring Station.

16-9

Comment Summary:

This comment asks if an airport master plan and environmental assessment for future airport expansion was completed after the 1992 ACLUP.

Response:

Refer to Response 16-4 above regarding the project compatibility with airport policies and operations.

16-10

Comment Summary:

This comment asks if future expansion of the airport would outweigh the proposed project.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

16-11

Comment Summary:

This comment cites text from ACLUP that states that the airport would safeguard the general welfare of aviation activities by imposing appropriate height restrictions.

Response:

Refer to Response 16-4 above regarding the project compatibility with airport policies and operations.

16-12

Comment Summary:

This comment asks if anyone on the review team has read the 1992 ACLUP.

Response:

Refer to Response 16-4 above regarding the project compatibility with airport policies and operations.

16-13

Comment Summary:

This comment asks if anyone has read the Department of Transportation, FAA Review of Solar Energy System Project on Federally Obligated Airports. The comment then asks if the proposed project is in compliance with those FAA standards.

Response:

Impacts associated with glint and glare were evaluated in the EIR in accordance with the FAA's "Interim Policy: FAA Review of Solar Energy System Project on Federally Obligated Airports" (see **Appendix H-3** of EIR). Refer to Master Response 6 for more information on the glint and glare analysis conducted in the EIR. The project applicant has filed 124 FAA Notices of Proposed Construction or Alteration (14 CFR Part 77) and received several aeronautical study results from the FAA for equipment proposed on private land in the vicinity of the airport. To date, the FAA has responded on 121 of the 124 structures and determined the project structures do not exceed obstruction standards and would not be a hazard to air navigation. The majority were issued starting on March 26, 2019, and the applicant is receiving additional Determinations of No Hazard as of July 22, 2019. For any structures with preliminary locations that would be considered a potential hazard, those structures would be relocated or designed such that they would not be considered a hazard to air navigation by FAA.

In addition, mitigation measure **HM-2** requires the applicant to provide a Determination of No Hazard issued by the FAA prior to building and grading permits.

16-14

Comment Summary:

This comment states that the houses around the airport are economically disadvantaged.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

16-15

Comment Summary:

This comment asks if the County has determined appropriate bonding for the project.

Response:

Comment noted. The County will require the applicant to comply with all required site reclamation requirements, including bonding. The commenter does not present information that materially affects the methods or findings of the EIR.

16-16

Comment Summary:

This comment asks if the County has determined appropriate bonding for the project that would include compensation to victims from an airplane crash due to glint/glare or electromagnetic waves caused by the project.

Response:

Comment noted. The County will require the applicant to comply with all required site reclamation requirements, including bonding. The commenter does not present information that materially affects the methods or findings of the EIR. Contrary to the commenter's assertion, impacts associated with glint and glare are properly evaluated in the EIR. Refer to Master Response 6 for more information on the glint and glare analysis conducted in the EIR. See Appendix M, Solar Power Installations Effects on Avionics, in the Final EIR, for more information on potential impacts regarding electromagnetic waves.

Additionally, specifics on County-required bonds are not included in the EIR because economic issues are not considered under CEQA. Refer to Response 13-3 above regarding Chapter 84.29 Renewable Energy Generation Facilities. The commenter does not present information that materially affects the methods or findings of the EIR.

16-17

Comment Summary:

This comment states that the bonding should be large enough to cover settlements similar to the $80 million-dollar settlement to the Roundup weed-killer chemical victims.

Response:

Comment noted. The County will require the applicant to comply with all required site reclamation requirements, including bonding. The commenter does not present information that materially affects the methods or findings of the EIR.

16-18

Comment Summary:

This comment states that the County has yet to be sued for the Mt. View Road project, but that the County's luck may be coming to an end.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

April 1, 2019

Mr. Tom Nievez, Contract Planner
San Bernardino County
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

Ms. Michelle D. Blakemore
County Counsel, San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

Ms. Terri Rahhal, Director
Land Use Services Department
& Planning Division Manager
San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

SUBJECT: A CORRECTION TO THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) PREPARED FOR THE DAGGETT SOLAR ENERGY PROJECT, APPROXIMATELY 3,400 ACRES IN SIZE, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT, ALL SERVICED BY SCENIC ROUTE NATIONAL TRAILS HIGHWAY, AKA HISTORIC ROUTE 66, WITH SAID SCENIC ROUTE DESIGNATION OMITTED OR DELETED FROM THE PROJECT DEIR (STATE CLEARINGHOUSE NO. 2018041007)

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

17-1 Prior to publication of the DEIR for the Daggett Solar Energy project, we submitted comments re project's visual impacts, with reference to the fact that Historic Route 66 (National Trails Highway) is designated as a scenic highway in the San Bernardino County General Plan. It says so in the Open Space Element at Open Space GOAL OS 5. In the list of County designated Scenic Routes, the specific listing appreears under the heading DESERT REGION, Item # f.

17-2 And while the above fact is acknowledged in the Visual Impact Assessment at 3.1.2, in the appendices, which drag on for over 6,000 pages, that important fact is omitted from the DEIR section on Aesthetics and Visual Resources 3.1 Section, which is what the average interested person would refer to.

17-3 So, people reading the DEIR will not be informed that the section of National Trails Highway servicing the solar project area is actually a SCENIC ROUTE as adopted into law by the County Board of Supervisors on May 22, 2012.

17-4 This is critical information that the people have a right to know, when considering the visual impacts of 20-foot tall solar panels and 125 to 159 foot-tall transmission lines associated with the proposed Daggett Solar Project.

17-5 The omission of the Hwy 66 visual impact fact needs to be corrected with a revised DEIR, with a fresh 45-day comment period. The revision should make clear that the proposed Daggett Solar Energy project facility is in the immediate vicinity of Scenic Route 66, AKA National Trails Highway.

17-6 The General Plan is the constitution for land use decisions in the State of California. You may NOT sweep County designated Scenic Routes under the rug.

Thank you very much.

1.

April 1, 2019

Mr. Tom Nieves, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore

Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: samuel martinez, director lafco
cc: san bernardino planning commission
cc: vickie paulsen, director, newberry springs community services district*
cc: robert shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: robert vasseur, president, newberry springs/harvard property owners assn.
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, director, operations, mojave desert air quality management dist.
cc: sammy roth, los angeles times
cc: bridget botelho, director of communications, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: supervisor robert lovingood, 1st district, san bernardino county

17 CEQA NOW

17-1

Comment Summary:

This comment states that CEQA Now submitted a NOP letter that referenced that the Historic Route 66 is designated as a scenic highway in the County's General Plan.

Response:

All comments received during the NOP review period are included in **Appendix A** of the EIR. The comments were categorized by issue and the most common environmental concerns were summarized in Section 1.0 Introduction; EIR Scope, Issues, Concerns of the EIR.

General Plan policies as they relate to Route 66 are discussed in the DEIR's Section 3.1, Aesthetics and Visual Resources beginning on page 3.1-9. On page 3.1-56, the DEIR states that Routh 66 is a County-designated scenic route. Contrary to the commenter's assertion, the EIR acknowledges that Route 66 is a "scenic route." The EIR concludes, however, that the project would not conflict scenic route designation for Route 66. Refer to Response 14-1 regarding impacts to Historic Route 66.

17-2

Comment Summary:

This comment states that scenic designation for Historic Route 66 is mentioned in the Visual Impact Assessment, but not in the Aesthetics and Visual Resources section of the EIR.

Response:

Section 3.1, Aesthetics and Visual Resources, of the EIR describes the National and State scenic highway program and states that Route 66 is a designated National Historic Trail and is designated as Historic Highway Route 66, which makes the route eligible for consideration for designation as an All-American Road or National Scenic Byway by the FHWA. In addition, this section discusses how the project would conform with the relevant Route 66 County General Plan policies. Refer to Response 14-1 regarding impacts to Historic Route 66.

17-3

Comment Summary:

This comment states that discussion on Historic Route 66 should be included in the EIR to inform the reader that the highway serving the project is a scenic route.

Response:

Section 3.1, Aesthetics and Visual Resources, of the EIR discusses Historic Route 66 and includes analysis of a view from Route 66. Contrary to the commenter's assertion, the project would not

conflict with the scenic highway designation for Route 66. Refer to Response 14-1 regarding impacts to Historic Route 66.

17-4

Comment Summary:

The comment states that the reader of the EIR should know information on Historic Route 66 when considering a project that contains 20-foot-tall solar panels and 125 to 159 feet tall transmission lines.

Response:

The applicant has clarified that the panels will not exceed 12 feet in height from grade. The project would not conflict with scenic highway designation for Route 66. Refer to Response 14-1 regarding impacts to Historic Route 66.

17-5

Comment Summary:

This comment states that the EIR should be revised to include information on Historic Route 66 and that the EIR should be recirculated and given a new 45-day comment period.

Response:

The EIR already contains substantial information and discussion on potential impacts to Historic Route 66; see Impact 3.1-2. Refer to Response 14-1 regarding impacts to Historic Route 66. Recirculation is not required.

Pursuant to CEQA Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of CEQA and no "unusual circumstances" are present that would warrant extending the comment period.

17-6

Comment Summary:

This comment states that the General Plan is the constitution of land use decisions and that scenic routes should not be disregarded.

Response:

Comment noted. See Response 14-1. Scenic resources, including state scenic highways, were given full consideration in the EIR. The EIR includes information and discussion on potential impacts to Historic Route 66; see Impact 3.1-2. Refer to Master Response 7 regarding impacts method used to perform the visual analysis in the EIR.

April 5, 2019

Mr. Tom Nievez, Contract Planner
San Bernardino County
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

Ms. Michelle D. Blakemore
County Counsel, San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

Ms. Terri Rahhal, Director
Land Use Services District
& Planning Division Manager
San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

SUBJECT: A FEW MORE QUESTIONS AND COMMENTS INRE THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) PREPARED FOR THE DAGGETT SOLAR ENERGY PROJECT, APPROXIMATELY 3,400 ACRES IN SIZE, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT. (STATE CLEARINGHOUSE NO. 2018041007).

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

18-1

1--If we can agree that fugitive sand and dust and related PM 10 and PM 2.5 health risk issues seem likely to result from the proposed Daggett Solar Energy Project, is there anything among all the "insignificant impact" statements in the DEIR that might reference all the linear sand dunes on the west faces of the Cady Mountains at the east end of Newberry Springs? Those linear dunes seem like good evidence--and like a strong clue that bulldozing 5.9 million cubic yards of earth, thus eliminating soil stabilizing vegetation ground cover, is going to exacerbate the already existing fugitive sand/dust problems.

Does the DEIR make any reference to said linear dunes?

18-2

2--After the County was sued by residents at the north end of Newberry Road in about 1991, for creating a fugitive sand condition that was burying their homes on the south side of the Mojave River course, the County commissioned two independent studies of the situation and cross-complained against the alfalfa farmers and large lake owners. A confidential settlement was afterwards reached.

Since that time, or before, the County has been hauling away blow sand from the Minneola Road and Harvard Road Mojave River crossings. Our question is:

2a: Since about 1980, how many tons or cubic yards of blowsand has the County Road Department hauled away from the Minneola Road and Harvard Road Mojave River crossings? To what locations was that blowsand taken? And what is the total cost of that blowsand removal to the taxpayers since 1980?

The County-prepared study of situation dated January 22, 1992 is titled: BLOW SAND NEWBERRY SPRINGS ROAD AREA. The independent studies were done by J & M Land Restoration, Inc. in Bakersfield, California and Tabler & Associates, in Niwot, Colorado.

Are these two professional studies, commissioned by San Bernardino County, being reexaminad by County staff and the applicant's consultants?

April 5, 2019

Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

3--Today, we received a notice from the Lahontan Regional Water Control Board re their closure and post-closure plans for the Solar Electric Generating Systems I and II at Daggett....commonly referred to as SEGS 1 & 2.

It appears that the closure of SEGS 1 and 2 location is identical to a portion of the Phase 1 industrial-scale solar application for the Daggett Solar project's approximately 3,400 acre site.

18-3

What you should know is that a number of people who worked at the SEGS 1 & 2 sites, years ago, made reference to spills of a heat-transfer fluid called THERMINOL at the sites that were NOT reported to the County or to the State Water Control Board.

We suggest that this matter be looked into now by the County Land Use Services Department and Lahontan Regional Water Control Board. We have contacted today, at LAHONTAN, their engineering geologist, John Steude via email at john.steude@waterboards.ca.gov.

Jeff Brooks, senior enginsering geologist, at LAHONTAN, is also involved in said closure project. His telephone number is 530-542-5420.

Sincerely,
Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: sammuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert & veronica shaw, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: robert vasseur, president, newberry springs/harvard property owners assn.
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, operations, mojave desert air quality management district
cc: sammy roth, los angeles times
cc: bridget botelho, director of communications, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: supervisor robert lovingood, 1st district, san bernardino county

2.

18 CEQA NOW

18-1

Comment Summary:

This comment states that the project would result in air quality impacts from fugitive sand and dust. The comment then states the project would create linear sand dunes like the ones near Cady Mountains and east of Newberry Springs due to the removal of vegetation.

Response:

Refer to Master Responses 1 and 8 for more information on fugitive dust. Contrary to the commenter's assertion, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Master Response 1 regarding air quality impacts and mitigation measures.

18-2

Comment Summary:

This comment references past litigation between the County and residents near the north end of Newberry Road in 1991 regarding blowing sand and dust.

Response:

Comment noted for the record. The comment does not raise any environmental concerns specific to the project nor address the adequacy of the EIR.

18-3

Comment Summary:

This comment states that the Lahontan Regional Water Control Board is closing sections that overlap Phase 1 of the proposed project. The comment states that there are rumors that there are unreported hazardous spills on-site. The commenter states that the County should look into these rumors prior to approval of the project.

Response:

Refer to Section 3.8, Hazards and Hazardous Materials. As part of the Phase I ESA that Tetra Tech (2018a) conducted for the proposed project, a standard radius database search was conducted of 60 federal, state, local, and proprietary records. Based on the Phase I ESA site reconnaissance performed on June 19, 2018, the EDR database review, historical aerial and topographic map review, landowner interviews and completed user questionnaires, review of the GeoTracker database, and review of other documents made available, two recognized environmental conditions (RECs) were identified: the Sunray Solar Energy project and Barstow-Daggett Airport. The two facilities and associated RECs are identified in detail in Table 3.8-1 of the EIR. See **Appendix H** for a list of information about the project site and potential for hazardous materials to be present at the site.

As described in Impact 3.8-2, project development has the potential to release hazardous materials associated with the above described RECs into the environment. Therefore, mitigation measure **HM-1** is required to reduce potential impacts associated with potentially hazardous site conditions because mitigation measure **HM-1** requires additional environmental documentation review and on-site soil samplings of the RECs to verify pollution contamination levels prior to issuance of grading permits.

Analyses in the EIR properly reviewed available records and databases and performed an on-site reconnaissance survey to determine the potential of hazards and hazardous materials to be present on-site. With implementation of mitigation measure **HM-1**, potential impacts associated with hazards and hazardous materials would be appropriately mitigated and additional investigations into rumored spills is not necessary.

April 10, 2019

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Ms. Terri Rahhal, Director
Land Use Services District
& Planning Division Manager
San Bernardino County
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SUBJECT: AN ARTICLE BY PH.D., P.E., QSD, CPMSM, TOM BROWNE, TITLED: WIND EROSION IN THE HIGH DESERT: THE CHALLENGE OF STABILIZING SOIL AND THE SUCCESS OF VARIOUS ALTERNATIVES.
WITH SAID ARTICLE, ATTACHED, FROM IECA.ORG OCTOBER/NOVEMBER 2018 EDITION (ENVIRONMENTAL CONNECTION PAGES 25, 26 & 27) TO BE INCLUDED AS A PROFESSIONAL REFERENCE AND OUR COMMENTS INTO THE DAGGETT SOLAR ENERGY PROJECT, ON ABOUT 3,400 ACRES IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT. (STATE CLEARINGHOUSE NO. 2018041007.)

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

19-1 The attached scientific article, referenced above, by Dr. Tom Browne, a water resources control engineer at the California Regional Water Control Board, Lahontan Region, in Victorville, California, should be a compulsory read for all County Planners and Clearway Energy Group consultants concerned with the Daggett Solar Project application.

19-2 1--In the paragraph titled: Case Study: The PV Solar Industry, it discusses loss of carbon dioxide sequestration and failures at achieving revegetation on former alfalfa farms in San Bernardino County and other Mojave Desert locations, after great expense.

Re revegetation efforts on a former alfalfa farm, after County officials shut down the solar project due to dust and Valley Fever issues drew citizen complaints. But: "We tried everything to revegetate and nothing worked."

19-3 2--To briefly summarize why nothing worked: See the three explanations on Page 26: Idle farm fields in the high desert are depleted of nutrients; and: Wind is relatively stronger and more frequent than rain. and Russian Thistle takes over to detriment of more soil stabalizing plants. and: Scraping of the desert soil destroys the soil rhizosphere.

19-4 3--Please read the "bad news" paragraph titled: CONCLUSION. In our words, not exactly the author's words: DO NOT BUILD INDUSTRIAL SCALE SOLAR ENERGY FACILITIES in a documented sand-transport path!!!!!!!!

19-5 4--Is anyone connected to San Bernardino County Planning Division or the applicant's consultant task force, denying that the proposed Daggett Solar Project is entirely within a documented sand-transport path?

1.

19 CEQA NOW

19-1

Comment Summary:

This comment references a scientific article by Dr. Tom Browne, a water resources control engineer at the California Regional Water Control Board, Lahontan Region.

Response:

Comment noted. See Master Response 8. The commenter does not explicitly state what information in the referenced article challenges the adequacy of the EIR.

19-2

Comment Summary:

This comment states that the *Case Study: the PV Solar Industry* discusses loss of carbon dioxide sequestration and failures of achieving revegetation on-site. The commenter states that the project caused dust and Valley Fever issues that forced the County to stop the project.

Response:

See Master Response 2 regarding Valley Fever. The long-term success of restoring appropriate and viable vegetation to project areas post-construction will depend on a number of factors. Browne (2018)[9] identifies three primary reasons why traditional best management practices (BMPs) are often not effective in the high desert based on his experience reviewing wind erosion results at over 20 solar energy facilities in the Mojave Desert. First, converted farmlands are often depleted of nutrients needed for new plants to succeed. Second, concerns with wind erosion require special focus. Third, scraping native desert soils adversely effects the soil rhizosphere which makes reestablishing native vegetation significantly more difficult. These difficulties are being addressed in the dust control measure selection process for construction activities. They will also be further addressed during post-construction planning (see the discussion of mitigation measures **AIR-3** and **BIO-7**).

Initial recommendations were provided for vegetation and revegetation management as an attachment to **Appendix D-2**, which included a proposed seed mixture and application rate. Comments received during the EIR review process[10] will be used to further inform all revegetation plans, particularly regarding the seed mixture, application rates, and initial maintenance activities. New language regarding post-construction revegetatioin has been added to mitigation measure **AIR-3**.

[9] Browne, Tom (2018). Wind Erosion in the High Desert: The Challenge of Stabilizing Soil and the Success of various Alternatives. *Environmental Connection* (Oct/Nov), IECA.ORG.

[10] Email from Ken Lair to Chuck Bell (cc. Pat Flanagan), May 19, 2019 with comments on Attachment 3: Vegetation – Revegetation Management Details.

19-3

Comment Summary:

This comment summarizes why revegetation of the fields may have been unsuccessful.

Response:

See Master Response 8 and Response 19-2 above. Prior to project ground disturbance for the construction phase, the project applicant will prepare a Dust Control Plan that addresses site stabilization/revegetation and for implementation during and subsequent to project construction, in accordance with **AIR-3**. As stated in mitigation measure **BIO-7**, prior to commencement of the decommissioning phase, the project applicant shall prepare a revegetation plan as part of the Decommissioning Plan to identify performance standards necessary for revegetation of the site with native plants. The Decommissioning Plan shall specify success criteria, including, but not limited to, site preparation methods, installation specifications, maintenance requirements, and monitoring/report measures to ensure certain botanical thresholds are met such as adequate cover, density, and species richness. Standards of success shall include at least a 50 percent revegetation success rate compared to baseline conditions and shall include annual monitoring for 2 years. If 50 percent revegetation has not been achieved within 2 years due to lack of water or other environmental factors, the applicant shall work with the County to identify and implement an alternate solution to achieve the identified success rate or stabilization method.

Specific seed mix of the revegetation plan has yet to be approved. Furthermore, success rate criteria shall include annual monitoring and a 50% success rate which would ensure the site is properly revegetated or stabalized after decommissioning. See revised language related to post-construction revegetation in mitigation measure **AIR-3**.

19-4

Comment Summary:

This comment states that the conclusion of the referenced study states that projects should not be built in sand-transport-paths.

Response:

Refer to Master Response 8 for more information on the impacts from wind-transported materials.

19-5

This comment asks if the applicant and County review team knows that the proposed project is located in a sand-transport-path.

Response:

See Master Response 8 above for a discussion of the sand transport paths in the area.

April 16, 2019

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SUBJECT: COMMENTS INTO THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE DAGGETT SOLAR PROJECT, ON ABOUT 3,400 ACRES, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT. (STATE CLEARINGHOUSE NO. 2018041007).

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

20-1 1--Re very misleading pro-project arguments for the Daggett Solar Project, concerning the groundwater issue: Any water savings that might occur on the west side of the water-basin-dividing Calico-Blackwater earthquake fault, will simply be reversed by additional and more sustained groundwater pumping by alfalfa farmers and lakes on the east side of said earthquake fault (which serves as a partial groundwater flow obstacle). Both sides of said Baja Subarea are treated as one, in the stipulated judgment, Case #208568, Superior Court, Riverside County. Said case was filed on January 10, 1996. Free-Pumping water rights are transferable, without restriction, within the Baja Subarea, SO, there is NO anticipated savings to our overdrafted groundwater basin, inherent in the Daggett Solar Project. NONE.

20-2 2--On March 27, 2019 the Mojave Basin Area Watermaster voted to recommend another rampdown of the Free Pumping Allowance (FPA) on all heavy water pumpers in the Baja Subarea for the 2019/2020 year. That will take the heavy water pumpers from 35% of their original free pumping entitlement to 30%, which is actually about a 14% reduction from the current water year.

20-3 We have a new judge assigned to the 1996 court case cited above, Judge Craig G. Riemer. Judge Riemer, if you read page 76 of the transcript of the oral proceedings on October 12, 2018, means to resolve the continuing overdrafting in the Baja Subarea, and seems to be intolerant of any more foot-dragging by certain directors sitting as the Basin Watermaster.

20-4 He seems to be upset with the lack of strict enforcement in the Baja Subarea, in previous years, of Paragraph 24 and Exhibit H, which the County planning division staff should become familiar with, inre this solar project application.

20-5 3--Alfalfa farmers can't afford to pay fair market value for imported water at over $600 per acre-foot, and probably neither can industrial-scale solar energy projects. Whoever encouraged and approved the relocation of water-overdrafting farmers to Newberry Springs, in the late 1970's and early 1980's, is now, presumably burning in the bottom/ninth circle of hell, in Dante's Inferno.

1.

April 16, 2019
Mr. Tom Nievez, Ms. Terri Rahhal, & Ms. Michelle.D. Blakemore

20-6 4--The County has a record of directing adverse industry towards economically disadvantaged communities in the rural desert areas, as they practice social injustice in poor, politically weak communities, for the benefit of others, away from the ill-effects of the adverse industry.

The County's record is long and sordid on this topic.

Take a good look at Title 42; Section 1983, et seq, in the federal code.

5--

NUMBER 5 IS DELETED...AT THIS TIME.

20-7 6--But the best solution, of course, is not to permit the massive ground disturbance inherent in the Daggett Solar Project from happening in a very well-documented sand-transport path, in a documented high wind area. It is a mystery why this project ever got off the ground and was not deflected in the pre-application conferences...and why there apparently has been no County Environmental Review Committee meetings on this huge environmental-risk project. Any answers to those questions?

Sincerely,

Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: sammuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, president, newberry springs property owners association
cc:robert vasseur, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, operations, mojave desert air quality management district
cc: sammy roth, los angeles times
cc: bridget botelho, director of communications, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning and research
cc: supervisor robert lovingood, 1st district, san bernardino county

2.

20 CEQA NOW

20-1

Comment Summary:

This comment states there is no anticipated savings to the overdrafted groundwater basin because the current water rights owners could transfer their rights without restriction within the Baja Subarea.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Indirect impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin.

20-2

Comment Summary:

This comment states that in 2019 the Mojave Basin Area Watermaster voted to recommend another ramp down of the Free Production Allowance (FPA).

Response:

Comment noted for the record.

20-3

Comment Summary:

This comment states that there is a new judge that oversees adjudicated judgement for the Baja Subarea.

Response:

Comment noted for the record.

20-4

Comment Summary:

This comment states that the new judge appears upset about prior lack of enforcement in the Baja Subarea.

Response:

Comment noted for the record.

20-5

Comment Summary:

This comment states that alfalfa farmers or the project applicant cannot afford to pay the fair market value for imported water.

Response:

Comment noted for the record.

20-6

Comment Summary:

This comment states that the County has a history of directing adverse industry towards the economically disadvantaged communities in the rural desert.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not raise any environmental concerns nor address the adequacy of the EIR.

20-7

Comment Summary:

This comment states that the project should be denied because it is located in a sand-transport-path and high wind area. The commenter also asks why a County Environmental Review Committee meeting was not held for the proposed project.

Response:

CEQA Guidelines Section 15063(a) states that if the Lead Agency can determine that an EIR will clearly be required for the project, an Initial Study is not required. The ERC convenes to make determinations about whether a project requires a Mitigated Negative Declaration (MND) or an EIR, etc. This process is not required, and in this case, the need for an EIR was determined early in the application process so ERC weigh-in was neither required nor appropriate. See Master Response 8 for a discussion of the sand transport pathways in the area and high winds. In addition, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Master Response 1 regarding air quality impacts and mitigation measures.

April 20, 2019

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SUBJECT: COMMENTS INTO THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE DAGGETT SOLAR PROJECT, ON ABOUT 3,500 ACRES, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT. (STATE CLEARINGHOUSE NO. 2018041007)

J' accuse

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

To summarize some previous input into the Daggett Solar Project DEIR, in no particular order:

21-1 1--Much of the Daggett Solar Project is clustered around the County owned Daggett Airport, on the west boundary of Newberry Springs. In the County prepared Draft Newberry Springs/Harvard Community Plan (12-7-84), at Section NH2.0230 (b) it states: Finding: The Barstow-Daggett Airport and surrounding area is an appropriate site for airport related industrial operations.

It is hard to imagine how anyone could think that 3,500 acres of mirrors, with attendant glint-glare, electromagnetic waves and 125' to 159' tall transmission towers could be airport related positives.

21-2 2--Chapter 84.29 of the San Bernardino County Development Code, titled Renewable Energy Generation Facilities establishes the law (not suggestions) for siting the Daggett Solar Energy Project. Six pages of mandatory requirements begin at Section 84.29.035. the Daggett Solar Energy Project can't meet about 6, 7, or 8 of the mandatory requirements, which we have referenced in previous comment letters.

21-3 3--This project has been floating around the corridors of County government since late 2014 and yet, to the best of our knowledge, no Environmental Review Committee meeting, open to the public, has been held, as per County Development Code Section 86.03.050. Any explanations?

21-4 4--We have referenced many professional studies re the sand-transport-path location of the proposed Daggett Solar Energy Project. If that subject is referenced in the DEIR, we haven't yet found it? Our fault, or yours?

21-5 5--Re the above comment, we don't see any requirement for establishing a two-year (minimum) baseline study to establish before project PM 2.5 and PM 10 fugitive dust data. Did we miss it?

April 20, 2019
Page 2
Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

21-6 6--Re the project consultant's determination of insignificant visual impacts, in spite of the project being ringed by the Newberry Mountains Wilderness Area, the Calico Mountains and the Cady Mountians, inside a national preserve, we find that determination unsubstantiated and unprofessional.

21-7 Also on this subject: The DEIR has disappeared the fact that the project adjacent National Trails Highway, AKA old Route 66, is designated a Scenic Route in the County General Plan at OPEN SPACE 5.3, Desert Region: (f). Guess they missed it.

21-8 7--Can anyone seriously explain why about four, five or more alternative sites, better suited to this project, were not examined?

21-9 8--Is the applicant going to be required to acquire a power purchase agreement from the Energy Commission prior any project approval by the County? If not, why not?

21-10 9--Would the project be approved by the County, if the County was aware that it is likely that most or perhaps all of the generated energy will be shipped out of state, to Arizona, etc.?

21-11 10--The County certainly is aware of the sand-transport-path issues in Newberry Springs. Afterall, it was sued by sand-engulfed homeowners at the north end of Newberry Road in about 1991. The County then commissioned two consultant's reports on that issue, by J. & M. Land Restoration, Inc. and Tabler & Associates. There was a confidential settlement.

21-12 But take a look at the Tabler & Associates Appendix A, titled Wind Data For Daggett Airport. Also, the airport likely has updated wind speed data. Has that wind data been solicited by the County Planning Division from the County Airport management? If so, can we see it?

21-13 11--What about the escaped/spilled Therminol reported years ago by worker(s) at the old SEGS 1 & 2 sites, which is planned to be inside Phase 1 of the Daggett Solar Energy Project location? My source said the spills were ignored. He was a supervisor at the site, now deceased.

21-14 11--Why do adverse industries focus on economically disadvantaged communities in rural desert areas of San Bernardino County? Think toxic dumps (Cady Mountians), dairies (late 1970's, early 1980's), sewage sludge compost facility (beaten off), illegal freeway billboards, ect.
What we have here is classic environmental racism, big time, practiced by San Bernardino County, here and in other small rural communities.

21-15 12--A good-government non-profit based in Washinton, D.C., in their February, 2017 issue of The Verdict, on page 1, rates San Bernardino County as one of the three most corrupt governments in the entire United States.

April 20, 2019
Page 3
Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

21-16 13--County government leaders view the rural desert areas as a piggy bank. As example the latest County Fire Department scheme to support their six-diget salaries. That being the FP-5 tax on non-fire hazard rural property to subsidize fire stations in the Valley/Urban/Higher Income areas of the County.

21-17 The Mojave County Formation Review Commission, established by the governor in about 1987 or 1988, issued a report in March, 1988, stating that a new county in the desert areas of San Bernardino County was viable, and that the urban areas were using the desert areas, even back then, as a piggy bank.

The issue went to the electors, with a separate vote in the valley/urban area, where it was defeated, naturally, and in the desert areas, where it passed,naturally, but it needed voter approval in both areas to succeed.

21-18 14--Probably the only way to stop the County's abuse of the desert area rural communities is to form a separated County in the desert areas, as was tried in the late 1980's. What that effort lacked, it seems, was an effective media and mail appeal to valley voters in the San Bernardino area,likely due to lack of funding. Another effort would perhaps be successful based on lessons learned.

21-19 15--One example of the County attitude towards rural desert communities: At the end of the Obama administration, Newberry Springs and other local economically disadvantaged neighbors sought approval for a federal Promise Zone designation, with economic benefits. The application needed the endorsement of the San Bernardino County chief executive officer, and he refused to sign off on the local Promise Zone application. End of story.

21-20 16--The County has a horrible reputation, which can work to rural community benefit. Cases of environmental racism have been successfully pursued at the federal level. Title 42 of the federal code is titled <u>The Public Health and Welfare</u>. Section 1983 is titled <u>Civil Action For Deprivation Of Rights</u>. Section 1988 of said law allows for the award of attorney fees as part of "costs". My understanding is that individuals can be named as defendants, hence could be required to pay complainants' attorney fees, which might allow the local area citizens to retain a pro-bono attorney more easily. We would have more arguments than mentioned in this commentary.

The most interesting part of any lawsuit is the "discovery" process, which County officials and Clearway Energy Group will be apprehensive about.

April 20, 2019
Page 4
Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

17--One more example of the County attitude towards rural desert communities: Our senior citizen building and organization is an IRS 501-C-3 non-profit organization, now calling their building on Newberry Road the family center.

21-21 My information is that they receive NO financial assistance from the County. In addition to which, they are required to pay an annual fee due to the fact that they have a water well! Don't we all have a water well in Newberry Springs? So what's going on? More siphoning of rural area funds to the urban area piggy bank, perhaps? This year's bill was $880.00. Go figure!

21-22 18--We need to seek help from the federal civil rights agency. The County abuse of this community has reached the tipping point.

Sincerely,

Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney
cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: sammuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, president, newberry springs property owners association
cc: robert vasseur, newberry springs
cc: chuck bell, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, operations, mojave desert air quality management district
cc: sammy roth, los angeles times
cc: bridget botelho, communications director, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: supervisor robert lovingood, 1st district, san bernardino county

21 CEQA NOW

21-1

Comment Summary:

This comment states that the Draft Newberry Springs/Harvard Community Plan finds that the Barstow-Daggett Airport is an appropriate site for airport-related industrial operations.

Response:

The Newberry Springs/Harvard Community Plan was not referenced in the EIR because it is not an official adopted document.

21-2

Comment Summary:

This comment states that the project is in multiple violations of Chapter 84.29.

Response:

Refer to Responses to Letter 13, specifically 13-3, above regarding Chapter 84.29 Renewable Energy Generation Facilities.

21-3

Comment Summary:

This comment states that the project has not been a part of an Environmental Review Committee meeting.

Response:

CEQA Guidelines Section 15063(a) states that if the Lead Agency can determine that an EIR will clearly be required for the project, an Initial Study is not required. The ERC convenes to make determinations about whether a project requires a Mitigated Negative Declaration (MND) or an EIR, etc. This process is not required, and in this case, the need for an EIR was determined early in the application process so ERC weigh-in was neither required nor appropriate.

21-4

Comment Summary:

This comment states that the sand-transport-path should be mentioned in the EIR.

Response:

The sand-transport-path is referenced by Impact 3.3-3, Wind-Transported Materials. Refer to Master Response 8 for more information on the impacts from wind-transported materials.

21-5

Comment Summary:

This comment states that there is not a "requirement for establishing a two-year (minimum) baseline study to establish before project PM 2.5 and PM 10 fugitive dust data."

Response:

Comment noted for the record. The EIR does not require a two-year baseline study for these pollutants. The EIR has an adequate baseline for air quality impacts in accordance with Mojave Desert Air Quality District guidance. Refer to Master Response 4 for more information on the air quality analysis.

21-6

Comment Summary:

This comment states that the determination that visual impacts are insignificant is unsubstantiated and unprofessional given the project is surrounded by the Newberry Mountains Wilderness Area, Calico Mountains, and Cady Mountains.

Response:

As stated under Impact 3.1-2, views of the surrounding mountains and desert landscape from the highways would still be experienced due to the setback between the highways and the project facilities. Views of the Newberry Mountains from KOP 5 would continue to be visible in the background, similar to existing conditions. Views of the Calico Mountains would still be visible from KOP 1. The project would result in a low level of visual change on the moderate existing scenic quality due to the viewing distance to the project and the numerous existing visual encroachments. The project would be visible in the background from recreational areas at the Newberry Mountains Wilderness Area; however, the project features would barely be discernible from the Calico Ghost Town, which is in the general direction of KOP 1, but farther from the project. The comment does not provide substantial evidence to support the claim that the visual findings in the EIR are inaccurate. Refer to Master Response 7 for more information on the methods used to perform the visual analysis in the EIR.

21-7

Comment Summary:

This comment states that the EIR does not mention that the Historic Route 66 is a scenic route in the County General Plan.

Response:

General Plan policies as they relate to Route 66 are discussed in Section 3.1, Aesthetics and Visual Resources beginning on page 3.1-9. On page 3.1-56, the DEIR states that Routh 66 is a County-designated scenic route. Contrary to the commenter's assertion, the EIR acknowledges that Route 66 is a "scenic route." The EIR concludes, however, that the project would not conflict

scenic route designation for Route 66. Refer to Response 14-1 regarding impacts to Historic Route 66.

21-8

Comment Summary:

This comment asks why other alternative sites were not examined.

Response:

As stated in Section 4.0, Alternatives to the Proposed Project of the EIR, Section 15126.6(a) of the CEQA Guidelines requires that an EIR describe a range of reasonable alternatives to the project, or a range of reasonable alternatives to the location of the project, that could feasibly attain the basic objectives of the project. An EIR does not need to consider every conceivable alternative project, but it does have to consider a range of potentially feasible alternatives that will facilitate informed decision-making and public participation.

As further indicated in Section 4.0, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project.

Section 4, Alternatives to the Proposed Project, of the EIR, evaluates an alternative project location at Kramer Junction (beginning on page 4-19 of the DEIR). Due to the project site's issues with the Mojave ground squirrel, the cost and time required for permitting would be substantially increased over the proposed project, making it infeasible for the project applicant. There are many factors that are considered when selecting a site for solar power development. The alternative Hinkley and Harper Lake locations suggested in the comment are respectively about 20 and 30 miles northwest of the project site. These sites are located in areas with higher levels of desert tortoise use and, in the case of Harper Lake, the most likely available sites would be located within areas designated as critical habitat for these species. Trona is about 70 miles to the northwest of the project site. Amboy is about 65 miles southeast of the project site. Alternative sites near Trona and Amboy were not considered in the Alternatives analysis due to a lack of existing infrastructure comparable to the project site as well as other less advantageous environmental characteristics. With respect to the flatlands between Adelanto and El Mirage, about 45 miles to the southwest of the project site, availability of suitable land is not known and very little resources information exists with which to conduct an alternatives evaluation. Overall, feasible alternatives were selected that would have avoided or reduced the project's significant impacts.

21-9

Comment Summary:

This comment asks if the project applicant would be required to acquire a power purchase agreement from the Energy Commission prior to project approval from the County.

Response:

The project applicant is not required to acquire a power purchase agreement from the Energy Commission prior to project approval from the County. Neither CEQA state law or county code contain such a requirement.

21-10

Comment Summary:

This comment states that energy from the project may be shipped out of state.

Response:

Economic issues are beyond the scope of this EIR. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

21-11

Comment Summary:

This comment states that the County is aware of the sand-transport-path issue considering the County was previously sued by homeowners at the north end of Newberry Road. The commenter then recommends the reader to review Table & Associate Appendix A, titled Wind Data for Daggett Airport and also whether the wind data referenced there has been solicited by the County.

Response:

See Master Response 8. Information about the sand transport pathways and wind data are discussed in the Response.

21-12

Comment Summary:

This comment asks if the airport has updated wind data.

Response:

The comment asks a question rather than makes a comment. Refer to Response 16-4 above regarding the project compatibility with airport policies and operations.

21-13

Comment Summary:

The comment references rumored hazardous spills on the project site.

Response:

Refer to Response 18-3 regarding hazards and hazardous materials found on-site. See **Appendix H** for a list of information about the project site and potential for hazardous materials to be present at the site. Mitigation measure **HM-1** requires that the applicant perform confirmation sampling and analysis prior to construction.

21-14

Comment Summary:

This comment states that the project is located in an economically disadvantaged community.

Response:

Comment noted for the record. Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment." (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not raise any environmental concerns about this project specifically nor address the adequacy of the EIR.

21-15

Comment Summary:

This comment states that the County is one of the most corrupt governments in the United States.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR.

21-16

Comment Summary:

This comment references taxes on rural property for to support fire suppression.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

21-17

Comment Summary:

This comment references a Mojave County Formation Review Commission established in 1987 that evaluated if splitting San Bernardino County was a viable option.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

21-18

Comment Summary:

This comment wonders why the County was not split into smaller counties.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

21-19

Comment Summary:

This comment questions the County's attitude towards rural desert communities.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

21-20

Comment Summary:

This comment states that the County commits "environmental racism" towards the rural desert.

Response:

Comment noted for the record. Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment." (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not raise any environmental concerns about this project specifically nor address the adequacy of the EIR.

21-21

Comment Summary:

This comment provides an example for why the commenter questions the County attitude toward rural desert communities.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

21-22

Comment Summary:

This comment states that the commenter needs to speak to the federal civil rights agency.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

April 29, 2019

Mr. Tom Nievez, Contract Planner
San Bernardino County
385 North Arrowhead Ave, First Floor
San Bernardino, CA 92415

Ms. Michelle D. Blakemore
County Counsel, San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

Mr. Terri Rahhal, Director
Land Use Services Department
San Bernardino County
385 North Arrowhead Ave
San Bernardino, CA 92415

SUBJECT: COMMENTS INTO THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE DAGGETT SOLAR PROJECT, ON ABOUT 3,400 ACRES, IN AND AROUND THE ECONOMICALLY DISADVANTAGED COMMUNITIES OF DAGGETT AND NEWBERRY SPRINGS AND THE DAGGETT AIRPORT. (STATE CLEARINGHOUSE NO. 2018041007)

Mr. Nievez, Ms. Rahhal & Ms. Blakemore:

As we all know, and have known for a very long time, the above industrial-scale renewable energy solar project is in multiple violation of Chapter 84.29 of the San Bernardino County Development Code, titled RENEWABLE ENERGY GENERATION FACILITIES. And it is in violation of a few critical Goals and Policies in the San Bernardino County General Plan.

We have looked for you to show some acknowledgement of those facts...and you have not done so.

22-1 Although we have cited various aspects of the Development Code and General Plan, the project application has NOT been withdrawn. By this we conclude that high levels of County government are encouraging the applicant, for reasons that we will not here speculate upon.

For the courtroom record, we again remind you that the Daggett Solar Project, referenced above is in violation of the following standards in Chapter 84.29 of the San Bernardino County Development Code:

Section 84.29.035 (c): 1, 2, 3a, 3b, 5 (doesn't no. 5 preclude any application within the jurisdiction of the Mojave River Basin Area Watermaster, of which we qualify?), 6, 9, 10, 16, 19, 20, 22, 28, 29 and 31.

22-2 We have been very restrained in this and all previous comments into the County re this project, which is an environmental outrage in clear violation of the County General Plan and Development Code. Comment letters from myself or the membership on this project to the County is about 54.

Sincerely,

Robert Berkman, President
CEQA-NOW

cc: patricia flanagan, morongo basin municipal advisory council
cc: steve mills, attorney

1.

April 29, 2019

Mr. Tom Nievez, Contract Planner
Ms. Terri Rahhal, Director
Ms. Michelle D. Blakemore, County Counsel

cc: bill lembright
cc: sandra emerson, san bernardino sun
cc: joe nelson, san bernardino sun
cc: steve hunt, daily press
cc: mark gutlueck, san bernardino sentinel
cc: louis sahagun, los angeles times
cc: samuel martinez, director, lafco
cc: san bernardino county planning commission
cc: vickie paulsen, director, newberry springs community services district
cc: robert shaw, president, newberry springs/harvard property owners assn.
cc: robert vasseur, newberry springs
cc: chuck ball, lucerne valley economic development association
cc: lorrie steely, president, mojave communities conservation cooperative
cc: ted stimpfel, newberry springs community alliance
cc: gavin erasmus, phd, attorney
cc: steve brown, mojave watch
cc: linda & wayne snively, newberry springs
cc: alan desalvio, operations, mojave desert air quality management district
cc: sammy roth, los angeles times
cc: bridget botelho, communications director, mother jones
cc: colonel john poole, commanding officer, u.s. army, fort irwin
cc: kate gordon, director, governor's office of planning & research
cc: supervisor robert lovingood, 1st district, san bernardino county

P.S.. Just a reminder that we are aware of the Solar Energy Development Standards in the County Development Code at Section 84.29.040, .050, .060 and .070.

2.

22 CEQA NOW

22-1

Comment Summary:

This comment states that the proposed project is in multiple violations of Chapter 84.29 of the San Bernardino County Development Code, titled Renewable Energy Generation.

Response:

Refer to Responses to Letter 13, particularly Response 13-3, regarding Chapter 84.29 Renewable Energy Generation Facilities.

22-2

Comment Summary:

This comment states that the project is in violation of the County General Plan and Development Code. The commenter adds that CEQA Now and others have sent the County about 54 letters.

Response:

Refer to Responses to Letter 13, particularly Response 13-3, regarding Chapter 84.29 Renewable Energy Generation Facilities.

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April 29, 2019

Via U.S. Mail and E-Mail

Tony Nievez, Contract Planner
County of San Bernardino, Land Use Services Department
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Tom.Nievez@lus.sbcounty.gov

Re: Daggett Solar Power Facility

Dear Mr. Nievez:

23-1 We are writing on behalf of California Unions for Reliable Energy whose member unions represent hundreds of men and women living in San Bernardino County and working in the construction trades performing work on renewable energy facilities throughout the region.

23-2 CURE is pleased to support the Daggett Solar Power Facility. The Project would involve construction and operation of an approximately 650 MW photovoltaic solar power plant and a 450 MW energy storage facility. The Project will contribute to meeting California's goal of having 100% of all electricity come from renewable resources by 2045.

23-3 CURE supports projects, such as the Daggett Solar Power Facility, that provide good jobs and sustained viability and growth of California's renewable energy industry. The Project will hire trained local construction workers, maintain area wage standards and provide health insurance. This will ensure that the Project provides maximum economic and employment benefits to San Bernardino County. In addition, the Project will provide job training opportunities for the youth of San Bernardino County and the region for careers in the construction industry through the hiring of apprentices and financial support for joint labor-management apprentice training programs.

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23-4 CURE believes that construction and operation of this renewable energy project will benefit San Bernardino County and the State of California. We are pleased to be able to support the Daggett Solar Power Facility.

Sincerely,

Tanya A. Gulesserian

TAG:ljl

4217-022j

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23 CURE

23-1

Comment Summary:

This is an introductory comment that describes the commenter's organization.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

23-2

Comment Summary:

This comment states that CURE supports the project because the project will construct and operate a solar facility that would help California meet the goal of 100% energy by 2045.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

23-3

Comment Summary:

The comment states that CURE supports the project because it would provide good jobs and sustained growth to California's renewable energy industry. The commenter states that the project would hire local construction workers which would contribute to the local and County economy.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

23-4

Comment Summary:

This comment states the project would benefit San Bernardino County and the State of California. This comment is the conclusion of the letter.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

DESERT TORTOISE COUNCIL
4654 East Avenue S #257B
Palmdale, California 93552
www.deserttortoise.org
eac@deserttortoise.org

Via email only

26 April 2019

County of San Bernardino, Land Use Services Department
Tom Nievez, Contract Planner
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Email: Tom.Nievez@lus.sbcounty.gov

RE: Daggett Solar Power Facility (State Clearinghouse No. 2018041007)

Dear Mr. Nievez,

24-1 The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

24-2 We provided scoping comments on this project on 25 April 2018 (Desert Tortoise Council 2018; herein "scoping comments letter") and now appreciate this opportunity to provide comments on the draft Environmental Impact Report (Draft EIR) for the project. Given the location of the proposed project in habitats potentially occupied by Agassiz's desert tortoise (*Gopherus agassizii*) (synonymous with "Mojave desert tortoise"), our comments pertain to enhancing protection of this species during activities authorized by the San Bernardino County Land Use Services Department (County).

24-3 We appreciate that the numerous surveys and analyses that we identified in our scoping comment letter were implemented. Furthermore, it is commendable that the proponents have committed to performing pre-construction, clearance tortoise surveys within 45 days of ground disturbance in creosote bush and saltbush scrub communities, as per BIO-1 on page 3.4-20 of the Draft EIR. If tortoise sign is found during these surveys, we understand that the proponent would consult with

24-3 *Cont'd*

U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) and that respective federal and state incidental take permits may be required. The Draft EIR stops short of making this commitment; rather it states that fences would be installed (page 3.4-26). The Final EIR should clearly state that USFWS and CDFW will be consulted if tortoise sign is found to see if permits are required.

24-4

The consultant indicates that it implemented the USFWS (2010a) tortoise survey protocol because at the time the USFWS (2017) protocol had not been finalized (Appendix E-3, page 9). However, the consultant failed to perform zone of influence surveys in peripheral areas at 200-, 400-, and 600-meter intervals, which are identified in the 2010 survey protocol. We therefore recommend that when the clearance surveys identified above are completed, that the consultant also performs zone of influence surveys in adjacent areas particularly to the north and east, adjacent to intact creosote bush scrub habitats. If tortoise sign is found in adjacent areas, this information would be shared with USFWS and CDFW to determine if incidental take permits or other measures (i.e., installing desert tortoise perimeter fences) are required.

24-5

We appreciate that focused plant surveys were performed and results are included in Appendix E-5. However, as noted on page 17 of Appendix E-5, the rainfall in 2017-2018 was at only 36% normal rain fall. As such, 2018 was a very poor year to detect annual plants, and most of the rare plants listed on pages 15 and 16 of Appendix E-5 are annuals and perennial herbs. Therefore, we recommend that additional plant surveys be performed in creosote bush and saltbush scrub communities under favorable rainfall conditions prior to ground disturbance. 2019 is an ideal year if these surveys can be performed in the next month-or-so. If rare plants are detected, the results would be shared with regulatory agency biologists to see if avoidance or mitigation measures are warranted.

24-6

On pages 4 and 5 of our scoping letter, we made the following statement with regards to subsidizing common ravens: "In particular, how will the Project facilities be constructed, operated, maintained, and decommissioned to minimize the attraction and subsidization of common ravens (*Corvus corax*) in the region, which would likely affect tortoises in these nearby essential habitats?" The only mention of common ravens in the Draft EIR is on page 3.4-27 with the following statement relative to measure BIO-1: "Trash and food items shall be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators of desert tortoise (e.g., ravens, coyotes, feral dogs)."

During the phases of construction, operation and maintenance, decommissioning, and site restoration, the proposed Project is very likely to contribute to subsidies of food, water, and/or sites for nesting, roosting, and perching/hunting for ravens. For example, the use of construction equipment will disturb up to 3,500 acres of the soil's surface, which exposes fossorial and burrowing animals to injury and death from this activity. This exposure, injury, and/or mortality would result in an increase in food subsidies for common ravens. Common ravens are quickly attracted to human activity and able to fly at least 30 miles in search of food and water on a daily basis (Boarman et al. 2006). Given this information, the proposed Project is likely to attract common ravens to/near the Project area and increase the likelihood of common ravens preying on desert tortoises in nearby tortoise habitats, including the Ord-Rodman and Superior-Cronese Critical Habitat Units.

24-7 The Final EIR needs to analyze how the proponent will monitor responses of the local raven population and identify/implement mitigation measures to eliminate local subsidies to ravens (e.g., new nesting substrates, food and/or water sources, etc.) in response to project construction, operation and maintenance, decommissioning, and restoration. We reiterate our request that the Project proponent should ensure that all standard measures to mitigate the local, regional, and cumulative impacts of raven predation on the tortoise are included in a predator management plan. The USFWS (2010b) provides a template for a project-specific management plan for common ravens. This template includes sections on construction, operation and maintenance, and decommissioning (including restoration) with monitoring and adaptive management during each project phase (USFWS 2010b). In addition, we reiterate that the applicant should contribute to the National Fish and Wildlife Foundation's Raven Management Fund to mitigate the regional and cumulative impacts associated with this Project and other land uses in the desert to reduce the expansion of raven populations in the range of the tortoise.

24-8 On page 6 of our scoping comments letter, we made the following statement: "Finally, with regard to cumulative effects, the Draft EIR must list and discuss all project impacts within the region including future state, federal, and private actions affecting listed species on state, federal, and private lands. Even though the project is not on public lands managed by the Bureau of Land Management (BLM), we ask that the relationship between this proposed private Project and the Desert Renewable Energy Conservation Plan (DRECP) be analyzed. This analysis should also consider ongoing and future projects in the City of Barstow and its sphere of influence that would result in losses of desert habitats from the region."

24-9 The only place in the Draft EIR where we could find "cumulative impacts" mentioned is on page 5-10. However, the few statements given there do not constitute a cumulative effects analysis, nor are any of the many projects occurring in the region listed and analyzed in that section. In this respect, we find the cumulative effects analysis to be deficient in the Draft EIR and ask that, at a minimum, the Final EIR provides this analysis by addressing the components listed above from our 2018 scoping comments letter.

24-10 We appreciate this opportunity to provide input and trust that our comments will further protect tortoises during authorized project activities. Herein, we ask that the Desert Tortoise Council be identified as an Affected Interest for this and all other County projects that may affect desert tortoises, and that any subsequent environmental documentation for this particular project is provided to us at the contact information listed above.

Regards,

Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

Literature Cited

Boarman, W.I, M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. Journal of Arid Environments 67 (2006) 248–261.

Desert Tortoise Council. 2018. Scoping Comments on Notice of Preparation of a Draft Environmental Impact Report for the Proposed Daggett Solar Power Facility, San Bernardino County, CA. Dated April 25, 2018. 8 pages.

U.S. Fish and Wildlife Service. 2010a. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). USFWS Desert Tortoise Recovery Office. Reno, NV.

U.S. Fish and Wildlife Service. 2010b. Common raven predation on the desert tortoise. USFWS, Ventura Fish and Wildlife Office, Ventura, California.

U.S. Fish and Wildlife Service. 2017. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). USFWS Desert Tortoise Recovery Office. Dated 21 August 2017. Reno, NV.

24 DESERT TORTOISE COUNCIL

24-1

Comment Summary:

This comment provides an introductory discussion and description of the Desert Tortoise Council.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

24-2

Comment Summary:

This comment states that the Desert Tortoise Council submitted a letter during the scoping period and appreciates the opportunity to comment on the EIR.

Response:

Comment noted for the record. The comment does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

24-3

Comment Summary:

The commenter states that the desert tortoise mitigation measure **BIO-1** described in the EIR should include a requirement that the USFWS and CDFW be consulted if tortoise signs are found during the preconstruction surveys to determine if permits are required.

Response:

Mitigation measure **BIO-1** has been modified to state that the applicant shall notify and consult with the USFWS and CDFW if tortoise or tortoise sign is identified during pre-construction surveys.

24-4

Comment Summary:

This comment states that the desert tortoise surveys conducted as part of the EIR failed to perform zone of influence surveys in peripheral areas of 200-, 400-, and 600-meter intervals which is identified in the 2010 survey protocols.

Response:

A survey for desert tortoises was conducted in accordance with USFWS protocols in April-May 2018, as discussed in Section 3.4, Biological Resources, of the EIR, and in the complete report documenting the surveys and results in **Appendix E-3** of the EIR. The plan for this survey was reviewed and approved by USFWS and CDFW staff. Zone of influence surveys for desert tortoises

were not conducted for this project because almost all land surrounding the project area and within those zones is privately owned property and not accessible to the biologists for the applicant. The project proponent discussed the survey plan with staff from the USFWS and CDFW, who agreed that the survey approach that was implemented was sufficient for evaluating potential effects of the proposed project on desert tortoises.

24-5

Comment Summary:

This comment states that the survey for plant species was conducted in less than ideal conditions due to the low rainfall conditions of 2017-2018. The commenter recommends an additional survey be conducted in 2019 or during other periods of favorable rainfall conditions prior to construction to determine data for plant species during a normal rainfall year.

Response:

Since variable annual rainfall is common in California, it is not possible to conduct plant surveys only during years with high rainfall.

The six species that were identified in the projects' botanical literature review as potentially occurring on-site are not categorized as state or federally endangered. However, to further minimize potential impacts to CNPS-listed plants that could possibly be present on site during high rainfall years, the biologists conducting the preconstruction surveys will look for the presence of these six plant species identified in the Special-Status Plant Species Survey Report. If any of these six species are identified, they will be removed and transplanted to a suitable on-site area.

24-6

Comment Summary:

This comment states that the Desert Tortoise Council's NOP scoping letter included questions regarding mitigation measures for the common raven. The commenter states that ravens are only mentioned once in the EIR when describing a requirement of mitigation measure **BIO-1**. The commenter states that the project would most likely increase the presence of common raven in the area which could lead to desert tortoise predation.

Response:

The CDFW provided a letter but did not mention requirements related to ravens (Letter 2A). Contrary to the commenter's assertion, implementation of mitigation measure **BIO-1** would adequately reduce impacts associated with predation of desert tortoise from the common raven to a less than significant level. In addition, site surveys found no desert tortoise occupancy of the site. Refer to Responses 2A-6 through 2A-8 regarding desert tortoise analysis in the EIR.

24-7

Comment Summary:

The comment states that the project needs to analyze how the project would monitor the response of local raven populations during construction, operations, and decommissioning. The commenter states that all standard measures used to mitigate local, regional, and cumulative impacts of raven predation on desert tortoise are included in a site-specific predator management plan. The commenter also states that the project should contribute to the National Fish and Wildlife Foundation's Raven Management Fund.

Response:

The USFWS did not provide comment on the proposed project. The CDFW provided a letter but did not mention requirements related to ravens (Letter 2A). Implementation of mitigation measure **BIO-1** would adequately reduce impacts associated with predation of desert tortoise from the common raven to a less than significant level. Refer to Responses 2A-6 through 2A-8 regarding desert tortoise analysis in the EIR.

In addition, to further minimize the potential impacts from ravens, the following best management practices will be added to mitigation measure **BIO-1**:

- A trash collection system will be established to ensure that all food and other refuse that could attract tortoise predators is properly disposed of in self-closing, sealable containers with lids that latch to prevent entry by wind, common ravens, and mammals.
- All trash receptacles will be regularly inspected and emptied daily to prevent spillage and maintain sanitary conditions. The receptacles will be removed from the project area when construction or O&M activities are complete.
- Road-killed animals or other carcasses detected during construction or O&M activities will reported to a qualified biologist. If determined to be non-special-status species, the carcass will be picked up and disposed of immediately (e.g., removal to a landfill or disposal. For special-status species road-kill, a qualified biologist or project representative will contact the USFWS or CDFW, as applicable, prior to removal and disposal.
- During construction and O&M, storage of materials (e.g., food, trash) that may potentially attract predators will be limited to containers that are not easily accessible to wildlife.
- Use of water for purposes such as fugitive dust abatement will not be allowed to pool such that it attracts ravens and other tortoise predators.

24-8

Comment Summary:

The comment states that the EIR must list and discuss all project impacts within the region that affect listed species on state, federal, and private lands. The commenter requests that the project's relationship to the Desert Renewable Energy Conservation Plan (DRECP) be analyzed in the EIR. The commenter also states that the cumulative analysis in the EIR should include ongoing

and future projects in the City of Barstow and its sphere of influence that would impact desert habitat in the region.

Response:

The DRECP and cumulative analysis for the City of Barstow and its sphere of influence were evaluated in the EIR. As stated in Section 3.4, Biological Resources, there are no wildlife corridors traversing the project site, as designated by the San Bernardino County General Plan, West Mojave Plan, or DRECP. The site is unlikely to be used as a local habitat linkage for desert tortoise between USFWS Critical Habitat for the tortoise in the Newberry Mountains Wilderness to the south and the Mojave River to the north because of I-40 running between the project and the Critical Habitat on the south and I-15 running between the project and the Critical Habitat to the north as well as the railroad. Similarly, the lack of desert tortoise observations, the presence of only marginally suitable habitat on the project site, and the large area of the site in active agricultural production further support the determination that the project site does not likely serve as a local habitat linkage.

Past projects include those land uses that have been previously developed and comprise the existing environment. Present projects include those projects recently approved or under construction. Probable future projects are those that are reasonably foreseeable, such as those for which an application is on file and in process with a local planning department. The cumulative projects listed in Table 3.0-1, Cumulative Projects, have been determined to be reasonably foreseeable and have been developed in consultation with the County Planning Department. As stated under Impact 3.4-7 of the EIR, the geographic scope for considering cumulative impacts on biological resources includes other related projects in the County's Desert Region, which includes the City of Barstow and sphere of influence.

24-9

Comment Summary:

The commenter states that cumulative impacts are only mentioned on page 5-10. The commenter states that the cumulative analysis is deficient because it does not include enough cumulative analysis.

Response:

Cumulative analysis is discussed in Section 3.0 through Section 5.0 of the EIR. The analysis for each environmental topic is contained in the respective section. For example, the cumulative analysis for Section 3.4, Biological Resources begins on 3.4-37.

24-10

Comment Summary:

This statement is the concluding statement of the letter.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR.

LUCERNE VALLEY ECONOMIC DEVELOPMENT ASSOCIATION

Tom Nievez, Contract Planner
385 N Arrowhead Avenue, First Floor
San Bernardino, CA 92415
email: Tom.Nievez@lus/sbcounty.gov

Chuck Bell, Pres. 760 964 3118 chuckb@sisp.net
P. O. Box 193
Lucerne Valley, CA 92356

4/29/19

RE: Tech. Memo: Dust Control and Mitigation Measures for the Daggett Solar Power Facility Project San Bernardino County, California

(Sorry for the CAPs – but trying to differentiate between the memo's text – in italics)

25-1 THIS 'DAGGETT DUST CONTROL MEMO IS A FAIRLY HONEST ASSESSMENT OF WHAT'S OUT THERE AND WHAT COULD HAPPEN DURING AND AFTER CONSTRUCTION. QUESTION WILL BE – HOW WILL THE SPECIFIC MITIGATION MEASURES RELATE TO THE REALITY OF SAND SOURCES AND THE REGIONAL "PATH".

THE PERFUNCTORY MEASURES DON'T NECESSARILY RELATE TO POTENTIAL ON-THE-GROUND PERFORMANCE.

25-2 WHEN WILL WE SEE THE PROJECT 'DESIGN' AND ANY SPECIFIC PLANS TO MITIGATE THESE IMPACTS?

25-3 WHERE DOES THE AIR QUALITY IMPACT ASSESSMENT SHOW UP IN THE PROCESS – BEFORE OR AFTER PLANNING COMMISSION? WHAT SPECIFIC REPORTS AND MEASURES COME AFTER A PLANNING COMMISSION APPROVAL?

25-4 ONLY MINOR MENTION OF WIND/SAND SCOURING/BLASTING ON THE PANELS, ETC.

25-5 AFFECTS ON THE AIRPORT ARE GLOSSED OVER – WHEN WILL WE SEE THE AIRPORT'S COMMENTS AND MITIGATION? NOT JUST THE AIRPORT – BUT DOD'S RESPONSE AS WELL SINCE IT USES IT. FLYING DIRT ISN'T ALL THAT GOOD FOR AIRCRAFT, ETC.

25-6 SEE NOTES BELOW:

These include measures to address the supply or the transport of wind-blown materials.

In Rule 403.2 the MDAQMD refers to these as "Reasonably Available Control Measures" (RACMs).

Specific RACMs that are appropriate for each source should be used throughout the operation of the

Project. Implementation of these measures in conjunction with specific air quality mitigation measures,

should limit the emission of PM10 air pollutants during construction to acceptable levels. LIKELY NOT POSSIBLE – AND WHAT ARE THOSE MEASURES?

25-7 *The solar equipment on site will slow the wind and wind-blown sand moving across the site.*

The piles supporting the solar panels will particularly contribute to blocking some of the windblown

dust as will other facilities including the inverters and substations. DIDN'T WORK AT SOITEC IN NEWBERRY SPRINGS. IT ACTUALLY INCREASED WIND VELOSITY AND SAND BLOW – EVEN FROM UPWIND SOURCES.

25-8 *To the extent feasible,*

*the development of areas of the Project site will employ mowing and rolling techniques to maintain plant....*INCONSISTENT WITH THE PROJECT DESCRIPTION RE: HOW MUCH GRADING WILL BE REQUIRED, ETC.

25-9 *and limit emissions to 20 percent opacity in areas where grading occurs....* HARDLY ENFORCEABLE UNLESS MDAQMD IS OUT THERE. NEEDS DOWNWIND

25-9 Cont'd OPASITY MONITORS TO KNOW WHEN TO STOP WORKING OR APPLY MORE WATER – OR MORE LIKELY - JUST WATCH IT BLOW. ALSO NEEDS UP AND DOWNWIND PM MONITORS NOW IN ORDER TO PROVIDE BASELINE DATA PRIOR TO CONSTRUCTION.

25-10 ***Street Sweeping.*** *Sealed roads should be swept as needed...* HARDLY WORTH IT RELATIVE TO ALL THE OTHER SAND/DUST SOURCES. JUST A 'FEEL GOOD' MEASURE.

25-11 *The amount of disturbed and unprotected ground surface can be minimized for any given point in time*

during the construction process. Also, careful planning can reduce the total amount of area that will need to be disturbed during the construction process to the minimum amount necessary. AGAIN – CONFLICTS WITH THE PROJECT DESCRIPTION RE: THE AMOUNT OF GRADING, ETC. THE 'MIN. AMOUNT NECESSARY' WILL BE UP TO THE DRIVER ON THE GRADER – UNLESS MAPPED AND STAKED OUT. THE DEVELOPER WILL WANT TO GRADE AS MUCH AS POSSIBLE.

25-12 *An example would be to only trim vegetation (mow and roll) in areas where solar panels will be installed, rather than to remove vegetation entirely (clear and grub) followed by excavation or grading.*

Not only does this process lessen the level of ground disturbance, but it leaves the root system in place for a quicker regeneration of a vegetative cover. NICE THOUGHT – BUT MOST OF THE MOWED/ROLLED ROOTS/VEGETATION WON'T LAST LONG DUE TO SHADE FROM PANELS AND LIMITED PRECIPITATION REACHING ALL OF THE REMAINING VEGETATION DUE TO THE PANELS' IMPERVIOUS SURFACES. PLUS – THE LARGE AREAS WITH NATIVE VEGETATION AREN'T TOTALLY LEVEL – WITH SOME SAND HUMMOCKS/DUNES – THUS NOT FLAT ENOUGH FOR CONSITENCY OF PANEL LAYOUTS NORMALLY REQUIRED FOR INDUSTRIAL SOLAR.

25-13 ***IRRIGATION MANAGEMENT***

No Irrigation after the initial watering from the hydroseeding process, is recommended here. Nevertheless, should conditions warrant additional irrigation

25-13
Cont'd

(such as unseasonal heat or extended dry periods), it can be provided at the discretion of the DCC using direct application from a water truck. In this type of situation, a qualified biologist should be on-site during such irrigation events to watch for, and prevent any overwatering, sedimentation, or erosion. THIS MIGHT (MARGINALLY) WORK FOR POST-PROJECT RESTORATION – BUT NOT LIKELY TO MAINTAIN NATIVE VEGETATION WITHIN THE PANEL ARRAYS SINCE THE PANELS WOULD RESTRICT DISTANCES AND SPREAD OF WATER SPRAYS – PLUS LIKELY TOO MUCH SHADE.

25 LUCERNE VALLEY ECONOMIC DEVELOPMENT ASSOCIATION

25-1

Comment Summary:

The commenter questions whether the air quality mitigation measures would effectively mitigate impacts related to sand sources with respect to the regional "path".

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, implementation of additional standard measures does not change the EIR analysis, findings, or mitigation measures are required. The EIR fully addressed CEQA requirements for air quality impacts. Refer to Master Responses 1 and 8 for additional information regarding this topic.

25-2

Comment Summary:

The commenter asks for the release date of project design and specific plans related to implementation of mitigation measures.

Response:

Section 2.0, Project Description, of the EIR, describes the general project design. The final project design will be refined as part of the County plan review process and grading and building permit issuance. The Draft EIR recommends mitigation measures, which would be incorporated into a Mitigation Monitoring and Reporting Program (MMRP) that specifies responsibility and timing for implementation of all mitigation measures. The MMRP is approved and adopted by the County at the time of project approval. With respect to dust control, mitigation measures **AIR-1** and **AIR-3** require that the Air Quality Construction Management Plan and Dust Control Plan be approved prior to issuance of a grading permit, and both implementation plans must include the control measures and performance standards that are outlined in the mitigation measures in the Draft EIR. Refer to Master Response 1 for additional information. There is no specific release date for project design and specific plans.

25-3

Comment Summary:

The commenter asks if the Air Quality Impact Assessment is considered before or after the Planning Commission. The commenter then asks what specific reports and measures come after Planning Commission approval.

Response:

All technical reports, including the air quality assessment, are included as appendices to the DEIR and considered in whole with the body of the EIR in Planning Commission deliberations. Refer also to Response 25-2 and Master Response 1. Additional plans that would be required prior to construction include the Dust Control Plan required in **AIR-1**.

25-4

Comment Summary:

The commenter states that there is only minor mention of wind/sand scouring/blasting on the panels.

Response:

Impacts to solar panels and other project features are generally considered economic expenses for the project applicant and not environmental impacts of the project that are analyzed as part of the EIR. Any damaged panel could be replaced by the applicant. This comment does not present information that challenges the adequacy of the EIR.

25-5

Comment Summary:

The commenter states that airport impacts are briefly mentioned in the EIR. The commenter then asks when the public would be able to see the airport's and DOD's comments and mitigation measures.

Response:

Refer to Response 16-4 above regarding the project compatibility with airport policies and operations.

25-6

Comment Summary:

This comment cites language from the EIR regarding Reasonable Available Control Measures (RACM)s. The commenter questions the effectiveness of the RACMs and ask to know the specific measures.

Response:

The MDAQMD is the governing body that regulates air quality for the proposed project. Therefore, the project must comply with MDAQMD rules and policies, such as Rule 403.2 that aim to control fugitive dust emissions generated during grading activities. Standard construction practices that would be employed as part of compliance with Rule 403.2 include short-term dust control by a water truck and/or available water source on or near the drilling rig; stabilizing (chemical or vegetation) the site upon completion of grading when subsequent development is delayed; rapid cleanup of project-related track out or spills on paved roads; and minimization of

grading and soil movement when winds exceed 30 miles per hour. Refer to Response 3-2 for more information on MDAQMD requirements. Refer to Master Response 1 for more information on the proposed project's air quality impacts and mitigation measures.

25-7

Comment Summary:

The commenter disagrees with analysis in the EIR finding that solar equipment and panels would slow/block wind and windblown sand and claims that it did not work for another solar project in Newberry Springs.

Response:

The solar equipment and panels are expected to slow/block wind and windblown sand at the project site, although sand would still move through the site. The solar plant cited by the commenter is the largest concentrator photovoltaic (CPV) power plant in California. That plant comprises 12 panels, each one 1,130 square feet in size, and the panels are 27 feet tall and 47 feet in length. This project utilizes a different technology, PV solar, and the equipment used will be different. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are inadequate. Refer to Master Response 8 for more information on windblown materials. Additionally, refer to Master Response 1 for more information on air quality impacts and mitigation measures.

25-8

Comment Summary:

This comment states that the EIR is inconsistent when it discusses grading techniques.

Response:

This comment references the Dust Control and Mitigation Measures Technical Memo (**Appendix D-2**). Technical appendices are important reference documents for the EIR analysis, but it is not required that all recommended measures be incorporated into the EIR analysis. Mitigation measure **AIR-3** requires that the project utilize the mow-and-roll (agricultural land) or plate-and-roll (native vegetation) techniques to maintain plant root systems. This mitigation measure is binding and enforceable and will be implemented as part of the project.

25-9

Comment Summary:

This commenter disagrees with a statement in the EIR that states the project would limit emissions to 20 percent opacity in areas where grading occurs because the commenter claims that would require MDAQMD to be present on-site. The commenter also states that the project needs to install downwind and upwind monitors to determine baseline data prior to project construction.

Response:

The EIR follows MDAQMD guidance and provides an adequate baseline for air quality impacts. Refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis. Refer to Master Response 1 for more information on air quality impacts and mitigation measures.

25-10

Comment Summary:

The commenter states that the street sweeping mitigation measure described in the EIR would have little effect when compared to other sand/dust impacts.

Response:

The Draft EIR includes feasible measures to mitigate dust impacts, including but not limited to mitigation from sweeping sealed roads as needed.

25-11

Comment Summary:

This comment states that the EIR is inconsistent in its consideration of minimizing grading.

Response:

Mitigation measure **AIR-3** requires the project to manage and limit disturbance of ground surfaces from vehicle traffic, excavation, grading, vegetation removal, or other activities to lower the potential for soil detachment and reduce dust transport. It further requires that the project trim only vegetation (mow-and-roll (agricultural land) or plate-and-roll (native vegetation) techniques) in areas where solar panels will be installed, rather than remove vegetation entirely (clear and grub) followed by excavation or grading where feasible. This process lessens the level of ground disturbance and leaves the root system in place for quicker regeneration of vegetative cover to the minimum amount necessary for development of the project. The mitigation measure is binding and enforceable and will be required for the project.

25-12

Comment Summary:

The comment states that the mow-and-roll technique described in the technical appendix to EIR would be ineffective because the vegetation left in place would die from lack of sun and water from the panels overhead.

Response:

As stated in Section 2.0, Project Description, the proposed project would consist of solar PV panels mounted on a single-axis tracking system that follows the sun throughout the day. Therefore, sun would be able to reach different portions of the ground and thus vegetation

throughout the day while the panels track the sun, and vegetation would not be expected to die from lack of such and water due to spacing and rotation of the panels.

25-13

Comment Summary:

The comment states that recommendations in the technical appendix to the EIR are not likely to maintain native vegetation within panel arrays because the panels would restrict distances and spread of water sprays and would provide too much shade.

Response:

Refer to Response 25-12. Refer to Master Response 1 regarding air quality impacts and mitigation measures.

MBCA

morongo basin conservation association

P.O. Box 24, Joshua Tree, CA 92252
http://www.mbconservation.org

April 29, 2019

County of San Bernardino, Land Use Services Department
Tom Nievez, Contract Planner
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415 Tom.Nievez@lus.sbcounty.gov

RE: Daggett Solar Power Facility, Draft EIR (SCH No. 2018041007)

Dear Mr. Nievez,

The Morongo Basin Conservation Association takes this opportunity to comment on the proposed 3,500-acres (5.5 square miles) Daggett Solar Power Project (Project), intended to produce 650 MWs of RPS qualified solar power, located in the Mojave River Valley, aka Silver Valley, within the communities of Daggett and Newberry Springs. Our comments will demonstrate that if this Project is approved, the communities will lose their character and value, the natural and scenic values of their landscape and tourism economy, their air-quality (already a problem), and important components of the biological resources in the region.
The approved RECE "*emphasizes community-oriented renewable energy (CORE). Our ideal is local production primarily for local consumption.*" [1] This Project is the opposite of that goal.
Please reference the MBCA Scoping comments of April 26, 2018.

26A-1

Project Objectives

1. Assist the State in achieving or exceeding its Renewable Portfolio Standards (RPS) goals.

Comment: The California Public Utilities Commission (CPUC) reports that RPS targets are surpassed. *The* Investor Owned Utilities (*IOUs) have already surpassed the 2017 annual RPS percentage target of 27 percent. The three large IOUs are forecasted to continue to have excess procurement for the next six years. The IOUs may choose to apply excess renewable electricity procured in prior years to meet their RPS requirements in future compliance periods. Alternatively, they may sell renewable energy credits associated with the excess procurement to other load-serving entities, such as CCAs or ESPs.* [2] (bold added) See Basin and Range Watch Comments pages 2-3.

[1] RECE, April 2017, Intentions of this Element. Page 1
[2] 2018 California Renewable Portfolio Standards Annual Report. Page 3
http://cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/Renewables%20Portfolio%20Standard%20Annual%20Report%202018.pdf

2. Produce and transmit electricity at a competitive cost.

Comment: 'competitive cost' is based on the economies of scale and low land costs in the desert. Transmission cost are on the shoulders of the rate payer.

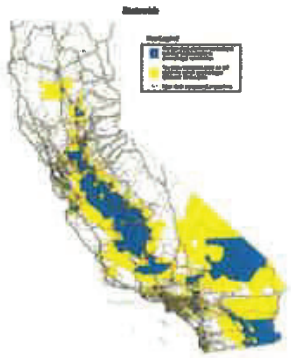
7. Develop a solar power generation facility in San Bernardino County, which would support the economy by investing in the local communities, creating local construction jobs, and increasing tax and fee revenue to the County.

Comment: The local economy will not benefit from the Project power produces.

- The solar generated power will be transmitted out of state or over the mountains through high fire zones. The transmission costs will be borne by the rate payers.
- Construction workers will be sourced from communities further away.

  The FEIR must report the number of permanent on-site jobs created.
- Improved value of industrial solar is not taxed. Meager unity tax is the only revenue stream from industrial solar. The improved value of parcels will be lost to SB County.
- Surrounding residences will lose the value of their homes along with their viewshed to a forest of 20-foot-high solar panels.
- **Economic and Environmental Injustice**

Undesirable industry tends to be located in poor, often minority neighborhoods.



With industrialization the numerous residents of the economically disadvantaged communities of Daggett and Newberry Springs will lose their air-quality, property values, and their quality of life. To regain these values, they have no other choice but to move away, which most are not financially equipped to do. What we have is

Privatization of Benefits and Socialization of Impacts.

Blue – Census tracts identified as disadvantaged communities
Yellow – Contain ZIP codes with disadvantaged communities

26A-1
Cont'd

Environmental Impacts

Aesthetics and Visual Resources

The DEIR finds that the Project while industrializing 5.5 square miles - a significant chunk of the Mojave River Valley, aka Silver Valley - with hundreds of thousands of rotating 20' high panels

(a) would not have an adverse effect on the scenic vista;

(b) would not substantially damage scenic resources within a County Scenic Route (National Trails Highway, Route 66);

(c) would not substantially degrade the existing visual character or quality of the site and its surroundings;

(d) would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area; (see Avian Resources page 16 this letter)

(e) would not result in cumulative aesthetic impacts.

The DEIR includes the following example in its analysis of Viewers Responses.

2 MBCA 4/29/2019

The 100 rural residences within 0.5-mile radius of the project are familiar with the landscape and *"will be sensitive to changes in the landscape"*. (DEIR 3.1-4).

***Sensitive to Changes in the Landscape*. This 'evaluation' cannot be serious, but is presented as such. The rural residents, generally between 5 and 6 feet tall, will be looking through (not over) an enveloping forest of metal trackers supporting a string of 20' high glass-like panels. They will be *sensitive to changes in the landscape*. No. They will be devastated. Their viewshed will be completely industrialized and, based on experience, enveloped in sand and dust, which will be discussed later.**

The DEIR provides visualizations of the proposed project components to convince the Decision Makers and Stakeholders that the viewshed is not threatened. Examples below.

26A-1
Cont'd

Figure A1. Typical Solar Array Layout



From Appendix B1, Appendix A Typical Projects Components:

Figure A1. Typical Solar Array Layout

Comment
The photo shows the solar panels slightly angled getting ready for sunrise. There is no way to know how tall the panels are or the size of the field. This example is deceptive rather than informative.

Figure A2. Typical Tracker Panel Configuration



Figure A2. Typical Tracker Panel Configuration

Comment
The image shows a man in a hard hat standing in front of a field of solar panels with mountains in the background. His hard hat just tops the panels that are only slightly angled. He appears taller than the trackers/panels. However, the Daggett solar panels will reach 20 feet into the air. Like Figure A1, Figure A2 is clearly deceptive.

3 MBCA 4/29/2019

DAGGETT SOLAR PROJECT – Figure 2 "KOP2" (Appendix B1, Visual Simulations Page C-4)
Analysis by Jack Unger, Newberry CSD Director

This is the DEIR photo supposedly showing the view from Interstate 40. In fact, as the DEIR admits, it's actually a view from the westbound "ONRAMP" to I-40. Based on this photo, the DEIR claims that "the project would result in a moderately low change to views from I-40". Figure 2 points put the lie to this DEIR claim.

1. This "onramp" photo is from a vantage point that is substantially lower than the actual view from I-40 itself. Look at the height of the barbed wire fence posts (circled). You can see that the photo was taken from a vantage point only a few feet higher than the 3-foot-tall fence posts.

2. The photo is taken with a wide-angle lens which makes the foreground look much larger and the background, along with the proposed solar plant, much smaller. Look at the line in the right margin. This is even with the position of Route 66 (National Trails Highway) which is visible as a white line in the distance. In fact, Route 66 is only 4/10s of a mile from the KOP2 location where this photo was taken. Yet the impression from this wide-angle photo is that Route 66 (and the simulated solar installation beyond) is a long, long distance away. In fact, the actual distance from Route 66 to the I-40 looks longer than the distance from Route 66 to the Calico Mountains beyond which are about 5 miles away.

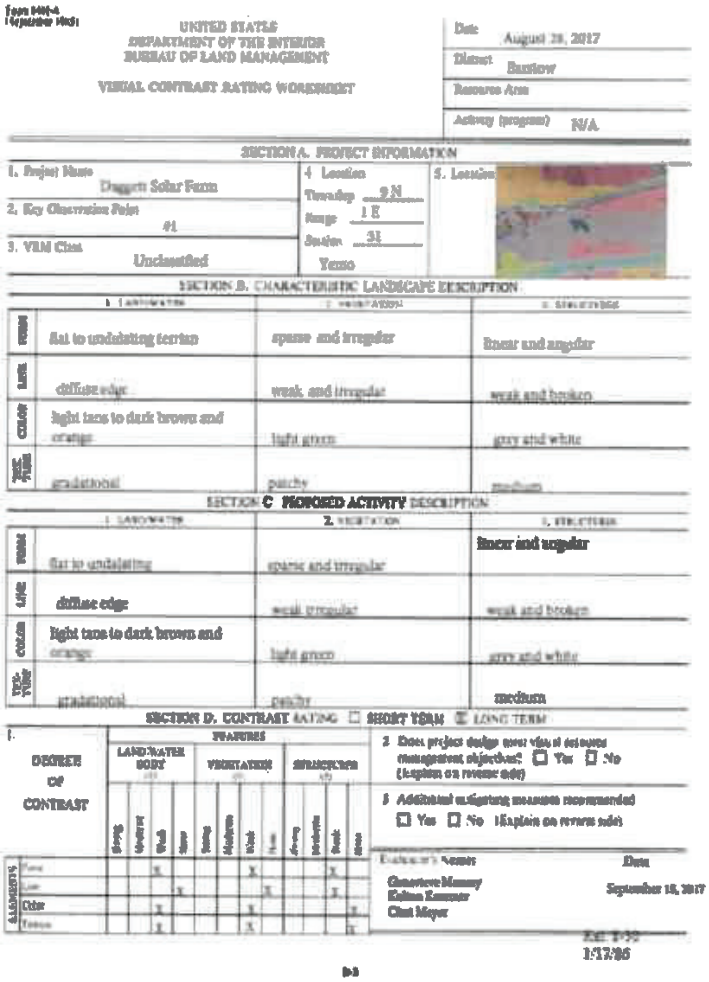
Bottom line. The DEIR and this (and, by the way, a number of other) DEIR photo(s) give the false impression that the solar project's impact on the viewshed is almost negligible when in fact the viewshed degradation would be very considerable, at least from this Highway 40 "key observation point 2" (KOP2) vantage point.

26A-1
Cont'd



4 MBCA 4/29/2019

26A-1
Cont'd



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: August 28, 2017
District: Barstow
Resource Area:
Activity (program): N/A

SECTION A. PROJECT INFORMATION

1. Project Name: Daggett Solar Farm
2. Key Observation Point: #1
3. VRM Class: Unclassified
4. Location: Township 9 N, Range 1 E, Section 31, Yermo
5. Location:

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURE
FORM	flat to undulating terrain	sparse and irregular	linear and angular
LINE	diffuse edge	weak and irregular	weak and broken
COLOR	light tans to dark brown and orange	light green	gray and white
TEXTURE	gradational	patchy	medium

SECTION C PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURE
FORM	flat to undulating	sparse and irregular	linear and angular
LINE	diffuse edge	weak irregular	weak and broken
COLOR	light tans to dark brown and orange	light green	gray and white
TEXTURE	gradational	patchy	medium

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST — FEATURES: LAND/WATER BODY; VEGETATION; STRUCTURES

ELEMENTS	LAND/WATER BODY: Strong	Moderate	Weak	None	VEGETATION: Strong	Moderate	Weak	None	STRUCTURES: Strong	Moderate	Weak	None
Form			X				X				X	
Line				X				X			X	
Color			X				X					X
Texture			X				X					X

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended: ☐ Yes ☐ No (Explain on reverse side)

Evaluator's Name: Christine Mooney, Kalina Kammer, Clint Moyer — Date: September 18, 2017

Ref: 8100
1:17:06

BLM Visual Contrast Rating (VCR) Worksheet
(1 of 6 in Appendix B1, Pages 62-68)

Rating system

Section B Characteristic Landscape Description
compares the
form, line, color, and texture
of the land and vegetation with the structures.

Section C
Proposed Activity Description
Same comparisons

Section D
Degree of Contrast among the Features

This rating system determines the visual differences or similarities between the natural landscape and vegetation, and the industrial solar structures (activity). None or slight differences only,

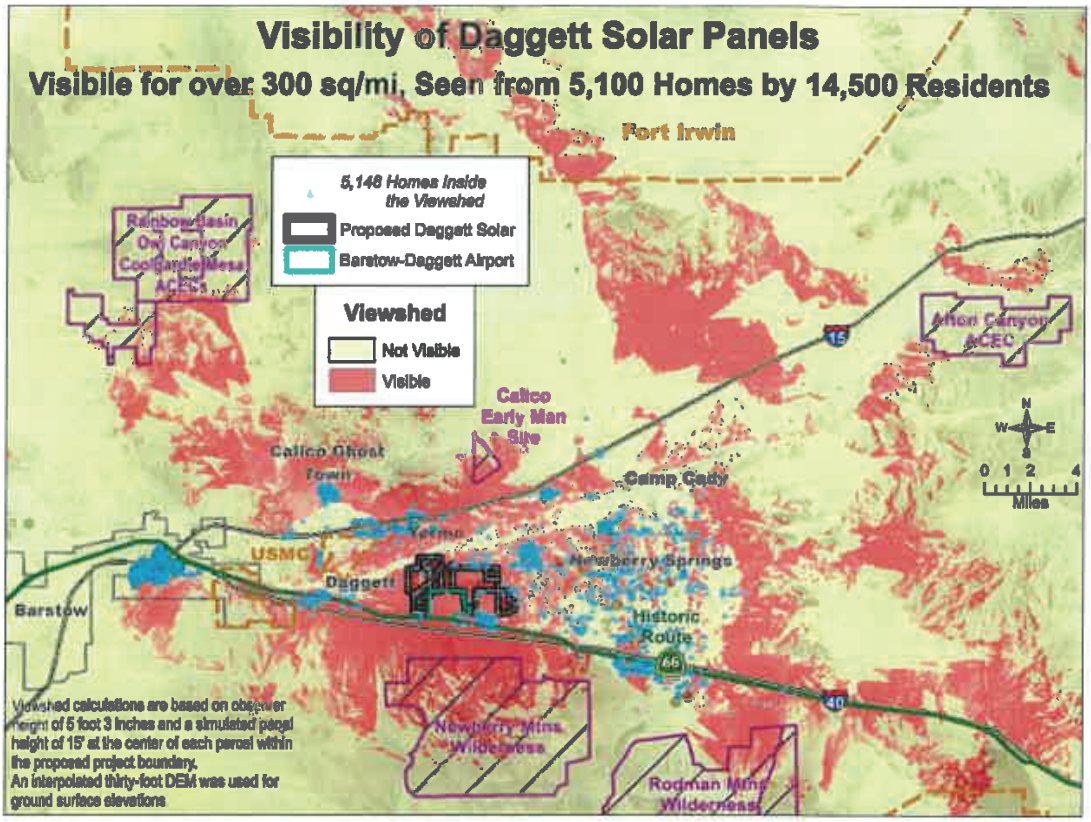


Comment
How would the VCR Worksheet analyze the picture to the left?

This photograph shows the 150-acres Cascade Solar structure near Joshua Tree Dry Lake in Joshua Tree. There is no problem distinguishing the landscape from the activity. The differences win out. The Black-throated Sparrow may find it more difficult. *Is that a lake where I can get a drink and snag a few insects?*

Photo 1
Credit: Deborah Bollinger

5 MBCA 4/29/2019



26A-1

Cont'd

This Visibility of Daggett Solar Panels
The Visibility map above was prepared by Brian Hammer, Professional Data/GIS analyst and Adjunct Professor, Victor Valley Community College, AG and Natural Resource Department.

The Daggett Solar Project will be a visible new source of light and glare from surrounding communities and elevations including the Newberry Mountains and Rodman Mountains Wilderness Areas, the Afton Canyon ACEC (within Mojave Trails National Monument), Calico Early Man Site, Calico Ghost Town, and Rainbow Basin, Owl Canyon, and Coolgardie Mesa ACECs.

The average annual daily traffic on the I-15 at Yermo Road is approximately 43,000 vehicles (Caltrans 2016a). The average annual daily traffic on I-40 at A Street is 14,400 vehicles (Caltrans 2016a). (DEIR 3.1-5)

Comment:
Bottom Line: If approved, the Daggett Solar Energy Project is in violation of the 2013 Solar Ordinance No. 4213, adopted into the SB CO Development Code Chapter 84.29 Renewable Energy Generation Facilities.

From the Ordinance – Sections bolded to emphasize the incompatibility of this Project with promises made to the communities and residents.
SECTION 1. The Board of Supervisors of the County of San Bernardino finds that:
(a) The County of San Bernardino desires to protect the character and value of communities and neighborhoods, and the natural and scenic values of the landscape within the County, from increased impacts of new commercial solar energy generation facilities, while providing safe and

6 MBCA 4/29/2019

reliable renewable energy to assist California and its investor-owned utilities in meeting the State's Renewable Portfolio Standards and its goals for reduction of greenhouse gas emissions.

(b) In protecting natural and scenic values of the landscape, the County recognizes not only the substantial intrinsic value of the desert's natural and scenic setting, but also the importance of this setting for the quality of life of area residents and the economic value it creates for the area's tourism industry.

(c) The County desires to guide new commercial solar energy generation facilities to areas that can accommodate such facilities with fewer human and environmental resource conflicts.

(d) In order to provide reasonable opportunities for commercial solar energy development and simultaneously protect communities, neighborhoods, and the natural and scenic values of the landscape, it is the intent of the County to focus new commercial solar energy development in areas that are both (1) less desirable for the development of communities, neighborhoods and rural residential use and (2) less environmentally sensitive.

From the Development Code

84.29.035 Required Findings for Approval of a Commercial Solar Energy Facility.

(a) In order to approve a commercial solar energy generation facility, the Planning Commission shall, in addition to making the findings required under Section 85.06.040(a) of the San Bernardino County Development Code, **determine that the location of the proposed commercial solar energy facility is appropriate in relation to the desirability and future development of communities, neighborhoods, and rural residential uses, and will not lead to loss of the scenic desert qualities that are key to maintaining a vibrant desert tourist economy by making each of the findings of fact in subdivision (c).**

26A-1
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(c) The finding of fact shall include the following:

(1) The proposed commercial solar energy generation facility is either (A) **sufficiently separated from existing communities and existing/developing rural residential areas so as to avoid adverse effects,** or (B) of a **sufficiently small size,** provided with adequate setbacks, designed to be lower profile than otherwise permitted, and sufficiently screened from public view so as to not adversely affect the desirability and future development of communities, neighborhoods, and rural residential use.

This project will:

(a) Have adverse and cumulative effects on the scenic vista and resources including Historic Route 66 (National Trails Highway), a County Scenic Highway

(b) **Compromise the desert tourist economy.** In 2015 there were over half a million (589,156) visitors to the Mojave National Preserve that spent over 33-million dollars in communities near the park. That would be our High Desert Communities. That spending supported 486 jobs in the local area and had a cumulative benefit to the local economy of over 42-million dollars.[3] And that was before the dedication of the Mojave Trails National Monument with the Lavic Lake Volcanic Fields and Amboy Crater, areas of interest adjacent to I-40 east of Newberry Springs and Ludlow.

(c) **Financial stress and health issues**

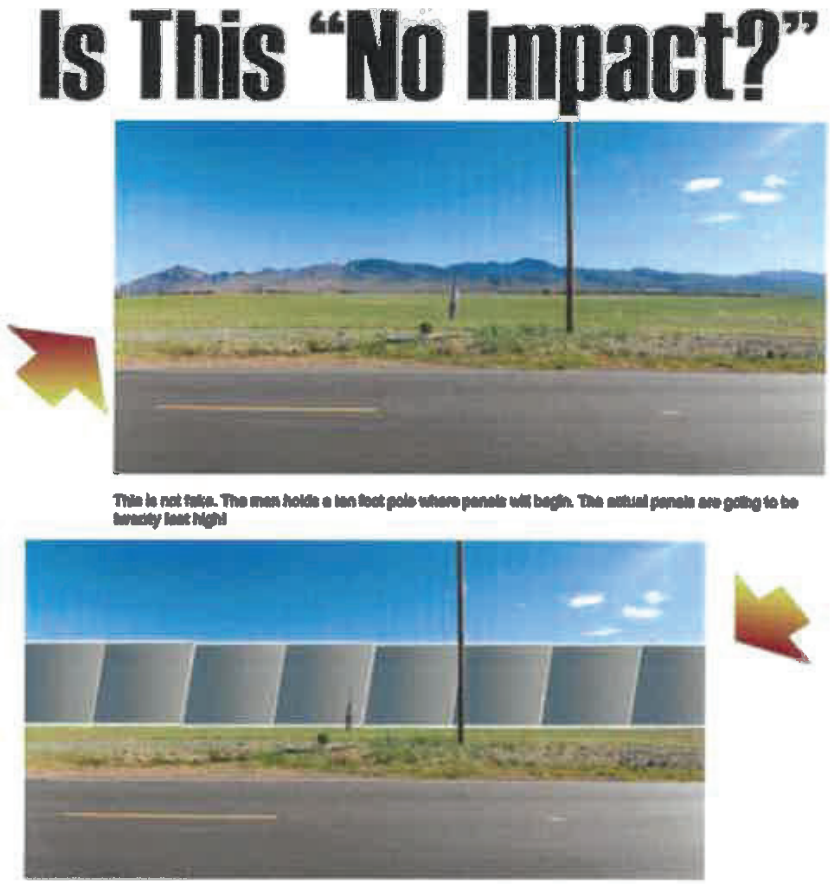
Homes adjacent to industrial solar sites are severely devalued and have failed to sell. Silver Valley would be affected by this phenomenon. Financial stress causes physical and emotional health issues.[4] For most people their homes are their largest asset and biggest investment. The sudden loss of equity would leave

[3] https://www.nps.gov/moja/learn/news/tourism-to-mojave-national-preserve-creates-nearly-43-million-in-economic-benefits-in-2015.htm

[4] Predictors of responses to stress among families coping with poverty-related stress Journal Anxiety, Stress, & Coping. An International Journal Volume 25, 2012 - Issue 3

7 MBCA 4/29/2019

residents adjacent to the proposed Project side unable to secure loans at pre-project values and would affect residents' ability (should they choose) to sell their homes thereby inducing financial stress and potential health issues.



Credit: Vickie Paulsen

26A-1
Cont'd

The visual effects of this Project, at the configured size of approximately 3,500 acres with 20-feet high solar panels, are not mitigatable by fencing, paint, or setbacks.

If approved, this Project must have Findings of Overriding Consideration that the benefits outweigh the environmental effects that cannot be mitigated must accompany an approval by the Planning Commission and Board of Supervisors.

Air-Quality

Blowing sand and dust in the Mojave River Valley is a constant topic for all those who live downwind in the area. Photos 2 and 3 below demonstrate the severity of the problem under current meteorological conditions. Rainfall in the area[5] does not alleviate the problem of blowing sand and dust.

[5] http://ceorange.ucanr.edu/about/weather/?weather=station&station=234

8 MBCA 4/29/2019



Photo 2: Credit: Robert Berkman. 4/6/2018 at 4:29 PM Looking North toward Daggett Airport. The sand blow begins within the footprint of the Project. Rainfall from Jan. through March 2018 was 0.6".

26A-1

Cont'd



Photo 3: Credit Robert Berkman, 4/9/2019 at 1:58 PM Looking North along Condor St. approximately 1/2 mile east of the Project boundary. Rainfall from Jan. through March 2019 was 2.87 inches.

9 MBCA 4/29/2019

As expressed in the MBCA Scoping Comments experience has shown that the MDAWMD Fugitive Dust Control Rule 403.2, adopted in 1996 for the Mojave Desert Planning Area is not up to the task of taming dust blows over large graded areas in sand transport paths. The Rule was adopted when the projects were smaller in size; i.e. construction/demolition activity; heavily traveled publicly maintained unpaved Roads; and weed suppression activity. Local residents know that applications of water have little to no effect on the eolian sand in the Mojave River Valley. See Photos 3 & 4 above and not rainfall/year.

The Project "site preparations would consist of clearing, grubbing, scarifying, recompacting, and grading to level the site and remove any mounds or holes that remain from previous land use." (DEIR Page 2-13) In total the project would grade 5,900,000 square yards which means any of the original plants including the creosote and saltbush in the undisturbed areas (about one-half of the project acreage) would be gone and the holding value of their roots with their living layer of microscopic algae, fungus, and bacteria which cement the soil surface together would be gone. [6], [7]

The clip below was taken from Google Earth centered on the Project site and shows an agricultural field on the left and undisturbed desert on the right. A goodly portion of this project is undisturbed. Creosote rings are clearly visible in this area and many could easily pass the 10 feet or more in diameter test, putting some zeros in their age. These ancients have not been analyzed, a requirement under the 2007 General Plan and Development Code.

The Final EIR must evaluate the creosote rings within the Project area and follow the Development Code.

26A-1
Cont'd

D/CO 1.3 Require retention of existing native vegetation for new development projects, particularly Joshua trees, Mojave yuccas and creosote rings, and other species protected by the Development Code and other regulations.



Creosote Rings

[6] Allen ME, Jenerette CD, Santiago LS, (2013) Carbon Balance in California Deserts: Impacts of Widespread Solar Power Generation. California Energy Commission Publication Number (CEC-500-2013-063. https://www.energy.ca.gov/2014publications/CEC-500-2014-063/CEC-500-2014-063.pdf

[7] Robin Kobaly, The Desert Under Our Feet. (March 2019) Desert Report. http://www.desertreport.org/

10 MBCA 4/29/2019

26A-1
Cont'd

See 88.01.060 Desert Native Plant Protection
DEIR Air Quality Impact 3.3-1
Finding: AQ Impact 3.3-1The project is potentially significant and unavoidable during construction because it will obstruct implementation of the applicable air quality plan. Mitigations AIR-1, AIR-2
Finding: AQ Impact 3.3-1 The project is potentially significant and unavoidable during construction because it will violate air quality standards and contribute substantially to an existing air quality violation. Mitigations AIR-1, AIR-2
Finding: AQ Impact 3.3-3 The project is potentially significant and unavoidable during construction because it will expose sensitive receptors to substantial pollutant concentrations. Mitigation AIR-3
Finding: AQ Impact 3.3-5 The project is potentially significant and unavoidable during construction because the project will result in cumulative impacts related to air quality. Mitigations AIR-1, AIR-2, AIR-3

Comments
MBCA disagrees with these findings. The air quality impacts are significant and unavoidable during construction, operation, and following decommissioning and restoration.

> During construction there will be *"clearing, grubbing, scarifying, recompacting, and grading to level the site and remove any mounds or holes that remain from previous land use... The following is a general estimate of the project's required grading by phase: Phase 1: 1,753,000 cubic yards; Phase 2: 1,888,000 cubic yards; Phase 3: 1,726,000 cubic yards; and gen-tie: 533,000 cubic yards."* (Page 2-13)
>
> AND
>
> *"The conclusion that Potential health impacts resulting from construction emissions from the project would be minimal. First, construction activities are temporary and the emissions from construction activities would end once construction of the project is complete."* (Page 3.3-22)

Once the native plants and agriculture areas are gone it is the nature of sand transport paths to blow unless stabilized. Following construction PM10 and PM2.5 will continue to blow through the valley. Please see Photos 2 and 3 on page 9 for the baseline conditions. The potential health impacts are a permanent problem unless and until the soils are stabilized.

The Project has no accurate baseline air quality data for PM10 and PM2.5
All calculations of the amounts of PM10 and PM2.5 that will be released during construction, operations, decommissioning and restoration are based on the Victorville monitoring station. Victorville is west of the Project. The wind disturbing the soils comes from the west, and, this shouldn't need saying, the PM10 and 2.5 blow eastward, away from the monitoring station. The MDAQMD is aware of this and has begun locating PurpleAir monitors in Newberry Springs. PurpleAir readings are continuous and a map is available on line. https://www.purpleair.com/map#14/34.83806/-116.68231
However, the monitors have not been up for long and the results can not be used for regulating.
In addition, we find no mention that monitors will be located on site during construction, operations, decommissioning, and restoration. No monitors, no data.

Any increase in particulate matter has been linked to severe health issues and higher mortality rates. This increase is seen even if these PM levels are below currently acceptable limits.[8]

[8] Shi L, Zanobetti A, Kloog I, Coull BA, Koutrakis P, Melly SJ, Schwartz JD. 2016. Low-

26A-1
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Silica Dust

Grading of the proposed Daggett Solar site will expose all adjacent residents, construction workers and down-wind residents to potentially life-threatening silica exposure. In dry conditions hazardous exposer to silica dust can occur from grading and earth moving.[9] It only takes a very small amount of the very fine respirable silica dust to create a health hazard. Recognizing that very small, respirable silica particles are hazardous, OSHA regulation 29 CFR 1926.55(a). Inhaling crystalline silica can lead to serious, sometimes fatal illnesses including silicosis, lung cancer, tuberculosis (in those with silicosis), and chronic obstructive pulmonary disease (COPD).[10]

Valley Fever

The DEIR dismisses the concern for Valley Fever. However, there is a known association of cases of coccidioidomycosis during PV solar construction in desert environments.[11] In the Antelope Valley and other areas of California, solar farms have already created a Valley Fever problem.[12] The cumulative extent of the Daggett Project soil grading along with construction of the proposed Projects in Lucerne Valley could become the open door for this serious disease. Rather than dismissal caution and real concern is warranted.

Mojave River as a Source of Dust

Per Robert Shaw DEIR comments (April 29, 2019)

> ***" In reading the DEIR it seems very apparent to many of the residents in this community that the consultant hired by you is neither familiar with or schooled in the parameters involved in this proposed project. One good example is that the consultants have declared the Mojave River as insignificant with respect to the peroration of airborne particulate matter. Where in fact the Mojave River bed hasn't seen surface water in many years and is actually a gross source of PM2.5 in and around the communities referenced by the DEIR."***

MBCA requests that the FEIR show reference and application of the research by Julie Laity - Aeolian Destabilization along the Mojave River, California: Linkages Among Fluvial Groundwater and Aeolian Systems[13] in its conclusions.

Sensitive Receptors

---

concentration PM2.5 and mortality: estimating acute and chronic effects in a population-based study. Environ Health Perspect 124:46–52; http://dx.doi.org/10.1289/ehp.1409111

[9] Control of Silica Dust in Construction OSHA Fact Sheet, OSHA3937 www.osha.gov%2FPublications%2FOSHA3937 .pdf

[10] silica-safe.org http://www.silica-safe.org/ask-a-question/faq#question4
http://www.silica-safe.org/know-the-hazard/why-is-silica-hazardous

[11] Coccidioidomycosis among Workers Constructing Solar Power Farms, California, USA, 2011–2014 Jason A. Wilken et al Nov 2015 CDC Emerging Infectious Diseases Volume 21, Number 11—November 2015

[12] 3 http://articles.latimes.com/2013/apr/30/local/la-me-solar-fever-20130501
http://www.newyorker.com/magazine/2014/01/20/death-dust

[13] Julie Laity (2003) Aeolian Destabilization Along the Mojave River, Mojave Desert, California: Linkages Among Fluvial, Groundwater, and Aeolian Systems, Physical Geography, 24:3, 196-221
To link to this article: https://doi.org/10.2747/0272-3646.24.3.196

12 MBCA 4/29/2019

Every resident east of the Project is a sensitive receptor when calculating the long-term health effects of increased PM10 and PM2.5 resulting for the construction, operations, decommissioning and restoration. The DEIR does not mention the sensitive 113 students attending Silver Valley Elementary School on Newberry Springs Road, directly east of the Project.

Comment
The Final EIR should inform the decision makers and stakeholders that if the CUPS are approved by the Commissioners and Supervisors, Clearway Energy will proceed with construction of this Project despite the lack of air quality baseline data or on- site monitors in place to track air quality throughout the life of the project through restoration. See the notice below.

The Dust Control Technical Memorandum Appendix D-2 page 3, footnote 1 *"San Bernardino County is in the process of issuing a Conditional Use Permit for Project #201700679, the Daggett Solar Project. "*

*"106. Dust Control – **Operation. Prior to final inspection**, the Applicant shall develop an Operational Dust Control Plan that shall be approved and implemented prior to energization of the solar facility. The Operational Dust Control Plan shall include Dust Control Strategies sufficient to ensure that areas within the Project site shall not generate visible fugitive dust (as defined in Mojave Desert Air Quality Management District's [MDAQMD's] Rule 403.2) such that dust remains visible in the atmosphere beyond the property boundary. During high wind events, Dust Control Strategies shall be implemented so as to minimize the Project site's contribution to visible fugitive dust beyond that observed at the upwind boundary."*

Cart before the Horse: The Stakeholders in line to lose the most from this project have not seen the Dust Control Plan which the County LUS has apparently approved. It should be clear from these comments that the ***Prior to final inspection*** timing is too late!

26A-1
Cont'd

The Decision Makers and breathing Stakeholders have also not seen a restoration plan that has a promise of working. The Technical Memorandum Attachment 3, Draft Standard Vegetation – Revegetation Management Details is disappointing. It speaks of *managing the existing site vegetation*, which we have already noted will be cleared, grubbed, scarified, recompacted, and graded to level the side. The project will grade, in total, 5,700,000 cubic yards of earth. There will be nothing left of the existing site vegetation.

The seed mixture to replenish the seedbanks includes annual spring blooming species and short-lived perennials. The restorers will use hydromulching and hand broadcasting to distribute the seeds. No irrigation will be used after the initial watering unless there are some long dry periods. It seems clear that professional desert restoration ecologists were not consulted when constructing this plan. The selected Spring annual plants represent those that are so abundant Super Bloom year. When was the last time in living memory that such abundance was seen? For many, like this writer, it has been decades if at all. It is usual to see some but not all present and not in numbers to prevent eolian erosion. The eolian erosion, long term, is prevented by shrubs such as creosote and saltbush and galleta grass that have developed the underground mycorrhiza colonies. The plan has no provision for developing a rich healthy soil which can take centuries. The restoration plan as detailed will not prevent eolian erosion.

Comment
No grading permits should be issued with out public review of the Dust Control Plan to include site management during operation, decommissioning, and restoration. Too much is at stake to let this slip through the usual bureaucratic cracked channels.

13 MBCA 4/29/2019

The Project should not be permitted without a requirement for an on-site meteorological station and dust monitors on the west and east sides of the Project.

Soiling – Dust on PV panels affecting power loss
An on-site meteorological station and dust monitors are also needed to study and measure the seasonal trends of soiling on PV panels. Soiling strongly depends on the conditions at a specific location and the power loss can be substantial. Soiling will also determine the cleaning methods and frequency which are dependent on water availability.

SOILING LOSSES: INTRODUCTION AND EFFECTS ON SOLAR MODULE[14]
The solar module in order to produce power requires direct irradiance (meaning that this light is directly coming from the sun).However, other than internal factors (such as refractive index of glass, refractive index of EVA, composition of glass, etc.) there are various external factors as well which affect the amount of irradiance entering the solar module. One such factor is soiling and the loss of power associated with such factor is known as soiling loss. Soiling refers to accumulation of soil, dust particles, etc. on the solar module. This soil accumulation hampers the solar irradiance to pass into the solar module. This primarily leads to reduction of power output from the solar module. This reduced power output may remain till the module is cleaned which may not be soon enough. The end result of soiling is that it leads to loss of money if not tackled properly. With a market where payback and economics are important, one cannot afford to lose money. Now with scheduling and forecasting regulations in place, the effect on plant owner would be two pronged i.e. first they would lose money due to reduced energy generation and secondly, they would have to pay deviation charges for the reduced generation (compared to what was forecasted/scheduled). Hence it is important to understand the factors effecting soiling, the factors that necessitate cleaning cycle and key takeaways. This article hence aims to educate its readers on the above matter.

26A-1
Cont'd

Biological Resources

MBCA is in receipt of the comments submitted by the Desert Tortoise Council (DTC) on April 26, 2019 and is in complete agreement. We, therefore, include by reference the DTC comments.

3.4-4 The DEIR finds the Project will not significantly interfere with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. No impact would occur from this Project.

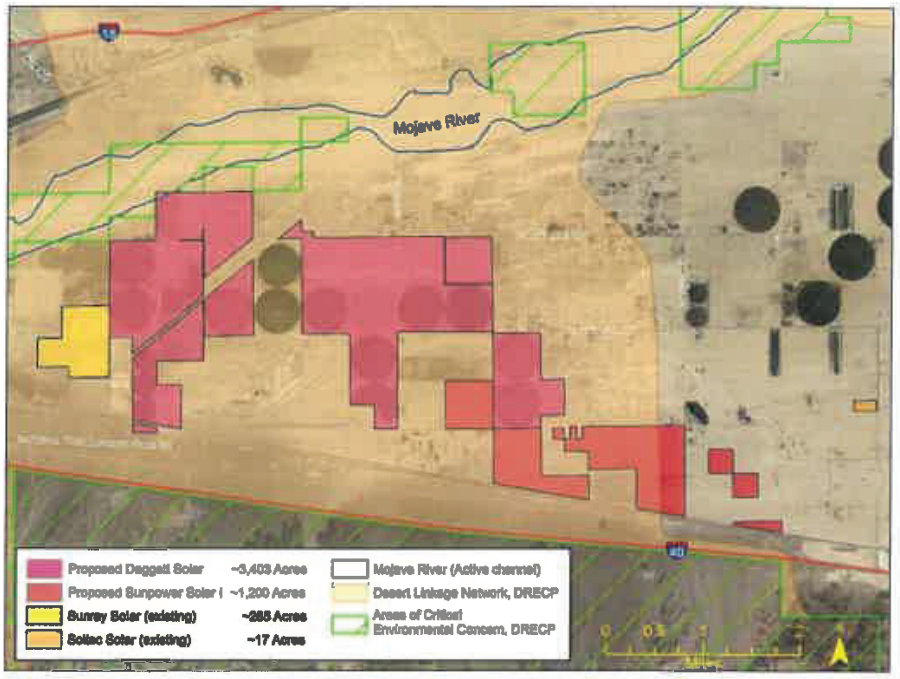
Comments
The justification provided in the DEIR for No Significant Impact is an opinion piece that is not supported by scientific data from the California Department of Fish and Wildlife or the U.S. Fish and Wildlife. The Daggett Solar Project blocks a significant portion of the passage land between the BLM ACEC to the south and link north across the Mojave River through Fort Irwin and to China Lake.

The Final EIR must analyze the linkage design as it supports both passage and live-in areas related to the Project. It is important to work with the military bases since they have a requirement not to become islands of biodiversity. This requirement is supported by the linkage design. Below are two

[14] https://www.waaree.com/soiling-losses-introduction-and-effects

14 MBCA 4/29/2019

maps showing the location of the project in the California Desert Linkage Network and the linkage network as it relates to the California Desert.



26A-1

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Desert Linkage Network adopted by the DRECP



Clip from Figure 33 A Linkage Network for the California Desert
A project of SC Wildlands supported by the BLM. http://www.scwildlands.org/

15 MBCA 4/29/2019

Avian Resources

This 5.5 square mile Project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. This is known as the 'lake effect'.

The MBCA includes by reference the lengthy data rich comments [15]on bird deaths in desert PV projects provided by Kevin Emmerich co-founder of the non-profit Basin and Range Watch.

We add data here from eBird, an online database of bird distribution and abundance provided by Cornell Lab of Ornithology. Available: http://www.ebird.org. The benefit of the eBird data is that we can see the range of bird species that fly over the Project area day and night and further investigate species number by season, should we want. In Emmerich's comments we read (page 6) that one report on avian mortality in three unnamed solar projects was 1.7 birds/acre/year. It is worth knowing the possibility that avian mortality at Daggett project could reach the same 6,000 birds/year as the three unnamed projects.

26A-1
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This map shows 7 bird hotspots surrounding the Daggett Solar Project. Data retrieved from the hotspots is provided in the table below. Each area is identified by location, total number of bird species seen at that location, the number of reports uploaded that contribute to the number of species, and the date the data was accessed for this report.

#	Location	# of Species	# of Checklists	Date Accessed
1	Afton Canyon	143	77	April 29, 2019
2	Piute Road Dairy	125	131	April 29, 2019
3	Newberry Springs Vicinity	143	76	April 29, 2019
4	Daggett Evaporation Ponds (may now be dry)	152	286	April 29, 2019
5	Tees & Trees	155	206	April 29, 2019
6	Barstow WTP	161	137	April 29, 2019

[15] Basin and Range Watch comments April 29, 2019

16 MBCA 4/29/2019

7	Barstow Comm. College	105	175	April 29, 2019

Noise
Noise will be generated from the solar panel tracking motors, inverters, and the eddy current hum associated SCE Intertie substation. The resulting noise will easily carry across Silver Valley.[16]

Heat Island Effect
The EIR dismisses the heat island effect. However, it has been found that PV power plants induce a 'heat island' (PVHI) effect, much like the increase in ambient temperatures relative to wildlands generates an Urban Heat Island effect in cities. Temperatures over a PV plant were regularly 3-4° C warmer than wildlands at night. [17]

MBCA appreciates this opportunity to comment on the Daggett Solar Project DEIR. We do feel that the time allotted to comment was seriously short because of the length and number of documents that had to be at least scanned to get a complete picture of construction activities, impacts, and mitigation measures. The Stakeholder went into this with limited background because the important Scoping process did not provide an Initial Study.

Our comments have been enriched by the thoughts and efforts of residents from
Newberry Springs:
Robert Berkman
Vickie Paulsen and her artist daughter
Jack Unger
Robert Shaw
Ted Stimpfel
And community members that attended a study session on this Project

Lucerne Valley and beyond:
Brian Hammer – map maker and researcher who has had the time to read and sign on to these comments
Chuck Bell
Ken Lair
Robin Kobaly

Organizations:
Desert Tortoise Council – Ed LaRue
Basin and Range Watch – Kevin Emmerich

26A-1
Cont'd

[16] As an example of solar site noise issues: Appendix F. Noise Assessment Campo Verde Solar County of Imperial. ftp://ftp.co.imperial.ca.us/icpds/eir/campo-verde-solara/33appf-noise-study.pdf.
[17] Greg A. Barron-Gaiord, Rebecca L. Minor, Nathan A. Allen, Alex D. Cronin, Adria E. Brooks & Mitchell A. Pavao-Zuckerman. The Photovoltaic heat island Effect: Larger solar power plants increase local temperatures. Scientific Reports 6. Article number: 36070 (2016) 13 October 2016.

17 MBCA 4/29/2019

Sincerely



Pat Flanagan, Board Member, Desert Heights
Member Morongo Basin Municipal Advisory Council

MBCA Board
President, Steve Bardwell, Pioneertown
Vice President, David Fick, Joshua Tree
Treasurer, Marina West, Landers
Member, Sarah Kennington, Pioneertown
Member, Meg Foley, Morongo Valley
Member, Mike Lipsitz, Flamingo Heights
Member, Seth Shteir, Joshua Tree

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Mark Lundquist Mark.Lundquist@bos.sbcounty.gov

26A MORONGO BASIN CONSERVATION ASSOCIATION

26A-1

This letter has been replaced with Letter 26B at the request of the commenter. The commenter states that Letter 26B includes only minor edits to Letter 26A and that the substantive comments are unchanged. Refer to Responses to Letter 26B below.

Nievez, Tom

From:	Steve Bardwell <steve@infinityranch.net>
Sent:	Wednesday, May 08, 2019 4:37 PM
To:	Nievez, Tom
Cc:	Rowe, Dawn; Lovingood, Robert; Knox, Matt; Lundquist, Mark
Subject:	Daggett Solar Power Facility
Attachments:	MBCA Dagget Solar DEIR FINAL.pdf; ATT00001.txt

Hello Mr. Nievez,

26B-1 We are sending this revised comment letter regarding the Draft EIR for the above project. We had previously sent this letter without some of the minor edits included within the attached. The time constraints of the comment period prohibited us from completing our editing before we submitted our letter on April 29. The gist of our letter remains unchanged that the DEIR does not adequately address the many adverse effects that this project would create.

MBCA

morongo basin conservation association

P.O. Box 24, Joshua Tree, CA 92252
http://www.mbconservation.org

April 29, 2019

County of San Bernardino, Land Use Services Department
Tom Nievez, Contract Planner
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415 Tom.Nievez@lus.sbcounty.gov

RE: Daggett Solar Power Facility, Draft Environmental Impact Report (DEIR)

Dear Mr. Nievez,

26B-2 The Morongo Basin Conservation Association takes this opportunity to comment on the proposed 3,500-acres (5.5 square miles) Daggett Solar Power Project (Project), intended to produce 650 MWs of RPS qualified solar power, located in the Mojave River Valley, aka Silver Valley, within the communities of Daggett and Newberry Springs. Our comments will demonstrate that if this Project is approved, the communities will lose their character and value, the natural and scenic values of their landscape and tourism economy, their air-quality (already a problem), and important components of the biological resources in the region.
The approved RECE *"emphasizes community-oriented renewable energy (CORE). Our ideal is local production primarily for local consumption."* [1] This Project is the opposite of that goal.
Please reference the MBCA Scoping comments of April 26, 2018.

Project Objectives (DEIR 2-2)

26B-3 1. Assist the State in achieving or exceeding its Renewable Portfolio Standards (RPS) goals.
Comment: The California Public Utilities Commission (CPUC) reports that RPS targets are surpassed. *The* Investor Owned Utilities (*IOUs) have already surpassed the 2017 annual RPS percentage target of 27 percent. The three large IOUs are forecasted to continue to have excess procurement for the next six years. The IOUs may choose to apply excess renewable electricity procured in prior years to meet their RPS requirements in future compliance periods. Alternatively, they may sell renewable energy credits associated with the excess procurement to other load-serving entities, such as CCAs or ESPs.* [2] (bold added) See Basin and Range Watch Comments pages 2-3.

[1] RECE, April 2017, Intentions of this Element. Page 1
[2] 2018 California Renewable Portfolio Standards Annual Report. Page 3
http://cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/Renewables%20Portfolio%20Standard%20Annual%20Report%202018.pdf

26B-4

2. Produce and transmit electricity at a competitive cost.

Comment: 'competitive cost' is based on the economies of scale and low land costs in the desert. Transmission cost are on the shoulders of the rate payer.

26B-5

7. Develop a solar power generation facility in San Bernardino County, which would support the economy by investing in the local communities, creating local construction jobs, and increasing tax and fee revenue to the County.

Comment: The local economy will not benefit from the power the Project produces.

- The solar generated power will be transmitted out of state or over the mountains through high fire zones. The transmission costs will be borne by the rate payers.

26B-6

- Construction workers will be sourced from communities further away. The Final EIR (FEIR) must report the number of permanent on-site jobs created.

26B-7

- Improved value of industrial solar is not taxed. Meager utility tax is the only revenue stream from industrial solar. The improved value of parcels will be lost to SB County.

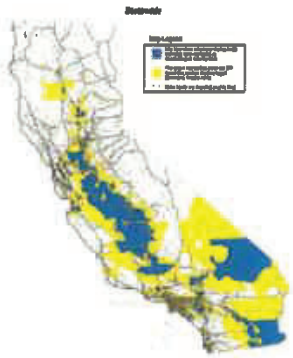
26B-8

- Surrounding residences will lose the value of their homes along with their viewshed to a forest of 20-foot-high solar panels.

- Economic and Environmental Injustice

Undesirable industry tends to be located in poor, often minority neighborhoods.

26B-9



With industrialization the numerous residents of the economically disadvantaged communities of Daggett and Newberry Springs will lose their air-quality, property values, and their quality of life. To regain these values, they have no other choice but to move away, which most are not financially equipped to do. What we have is

Privatization of Benefits and Socialization of Impacts

Blue – Census tracts identified as disadvantaged communities
Yellow – Contain ZIP codes with disadvantaged communities

DEIR Environmental Impacts

Aesthetics and Visual Resources

The DEIR finds that the Project while industrializing 5.5 square miles - a significant chunk of the Mojave River Valley, aka Silver Valley - with hundreds of thousands of rotating 20' high panels

26B-10

(a) would not have an adverse effect on the scenic vista;
(b) would not substantially damage scenic resources within a County Scenic Route (National Trails Highway, Route 66);
(c) would not substantially degrade the existing visual character or quality of the site and its surroundings;
(d) would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area; (see Avian Resources page 16 this letter)
(e) would not result in cumulative aesthetic impacts.

The DEIR includes the following analysis in its analysis of Viewers Responses.

2 MBCA 4/29/2019

The 100 rural residences within 0.5-mile radius of the project are familiar with the landscape and *"will be sensitive to changes in the landscape"*. (DEIR 3.1-4).

26B-10

Cont'd

Sensitive to Changes in the Landscape. This 'evaluation' cannot be serious, but is presented as such. The rural residents, generally between 5 and 6 feet tall, will be looking through (not over) an enveloping forest of metal trackers supporting a string of 20' high glass-like panels. Will they be *sensitive to changes in the landscape*? No. They will be devastated. Their viewshed will be completely industrialized and, based on experience, enveloped in sand and dust, which will be discussed later.

In Appendix B-1. Visual Impact Assessment, the DEIR provides visualizations of the proposed project components to convince the Decision Makers and Stakeholders that the viewshed is not threatened. Examples below.

Figure A1. Typical Solar Array Layout

26B-11



From Appendix B1, Appendix A Typical Projects Components:

Figure A1. Typical Solar Array Layout

Comment
The photo shows the solar panels slightly angled getting ready for sunrise. There is no way to know how tall the panels are or the size of the field. This example is deceptive rather than informative.

Figure A2. Typical Tracker Panel Configuration

26B-12



Figure A2. Typical Tracker Panel Configuration

Comment
The image shows a man in a hard hat standing in front of a field of solar panels with mountains in the background. His hard hat just tops the panels that are only slightly angled. He appears taller than the trackers/panels. However, the Daggett solar panels will reach 20 feet into the air. Like Figure A1, Figure A2 is clearly deceptive.

3 MBCA 4/29/2019

DAGGETT SOLAR PROJECT – Figure 2 "KOP2" (Appendix B1, Visual Simulations Page C-4)
Analysis by Jack Unger, Newberry CSD Director

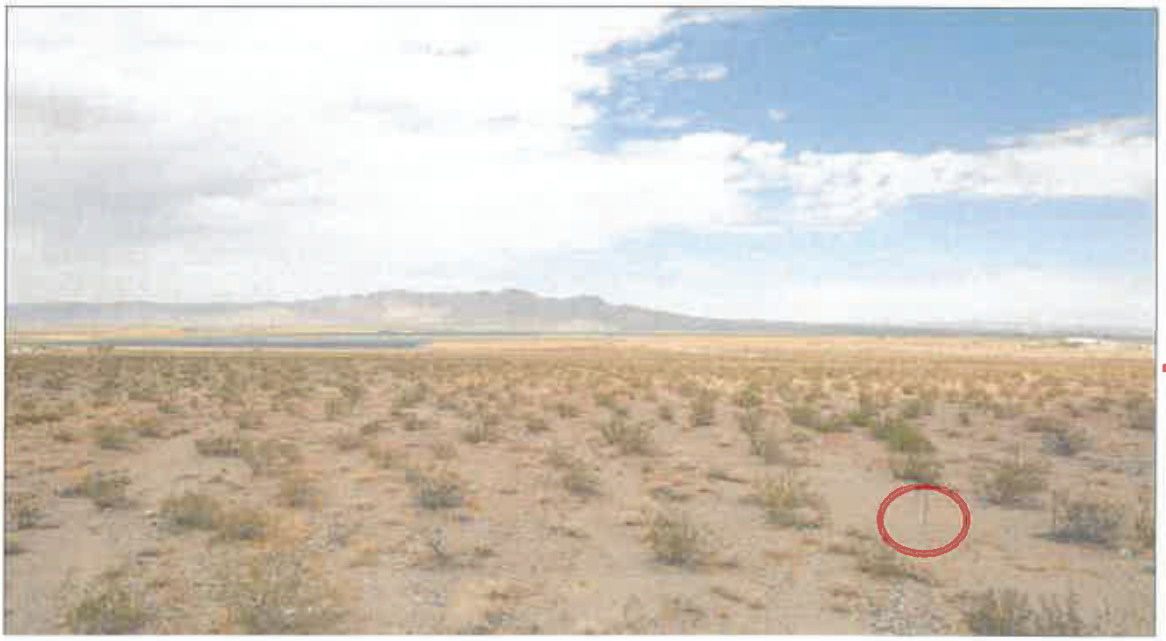
This is the DEIR photo supposedly showing the view from Interstate 40. In fact, as the DEIR admits, it's actually a view from the westbound "ONRAMP" to I-40. Based on this photo, the DEIR claims that "the project would result in a moderately low change to views from I-40". Figure 2 points put the lie to this DEIR claim.

1. This "onramp" photo is from a vantage point that is substantially lower than the actual view from I-40 itself. Look at the height of the barbed wire fence posts (circled). You can see that the photo was taken from a vantage point only a few feet higher than the 3-foot-tall fence posts.

2. The photo is taken with a wide-angle lens which makes the foreground look much larger and the background, along with the proposed solar plant, much smaller. Look at the line in the right margin. This is even with the position of Route 66 (National Trails Highway) which is visible as a white line in the distance. In fact, Route 66 is only 4/10s of a mile from the KOP2 location where this photo was taken. Yet the impression from this wide-angle photo is that Route 66 (and the simulated solar installation beyond) is a long, long distance away. In fact, the actual distance from Route 66 to the I-40 looks longer than the distance from Route 66 to the Calico Mountains beyond which are about 5 miles away.

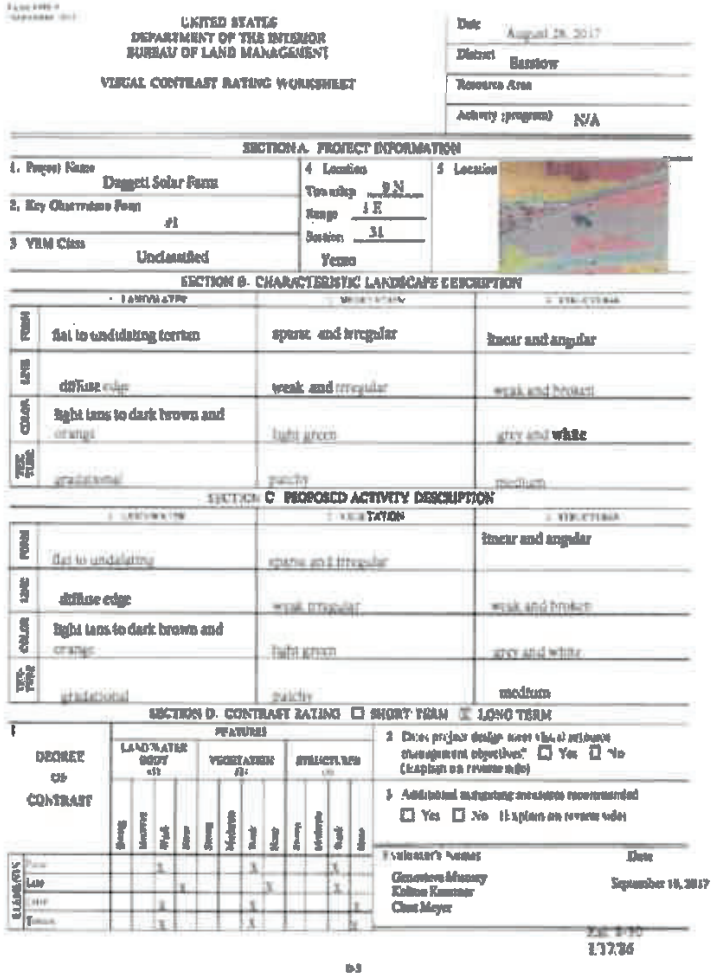
Bottom line. The DEIR and this (and, by the way, a number of other) DEIR photo(s) give the false impression that the solar project's impact on the viewshed is almost negligible when in fact the viewshed degradation would be very considerable, at least from this Highway 40 "key observation point 2" (KOP2) vantage point.

26B-13



4 MBCA 4/29/2019

26B-14



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: August 29, 2017
District: Barstow
Resource Area:
Activity (program): N/A

SECTION A. PROJECT INFORMATION

1. Project Name: Daggett Solar Farm
2. Key Observation Point: #1
3. VRM Class: Unclassified
4. Location: Township 9 N, Range 1 E, Section 31, Yerno
5. Location

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	LANDFORM	VEGETATION	STRUCTURES
FORM	flat to undulating terrain	sparse and irregular	linear and angular
LINE	diffuse edge	weak and irregular	weak and broken
COLOR	light tans to dark brown and orange	light green	grey and white
TEXTURE	gradational	patchy	medium

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	LANDFORM	VEGETATION	STRUCTURES
FORM	flat to undulating	sparse and irregular	linear and angular
LINE	diffuse edge	weak irregular	weak and broken
COLOR	light tans to dark brown and orange	light green	grey and white
TEXTURE	gradational	patchy	medium

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

DEGREE OF CONTRAST	FEATURES: LANDFORM (Strong, Moderate, Weak, None)	VEGETATION (Strong, Moderate, Weak, None)	STRUCTURES (Strong, Moderate, Weak, None)
Form		X	X
Line	X	X	X
Color	X	X	X
Texture	X	X	X

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Genevieve Muzny, Kelsea Kramer, Chet Meyer
Date: September 18, 2017

BLM Visual Contrast Rating (VCR) Worksheet
(Appendix B1, Appendix D. Field Forms - #1)
Rating system

Section B Characteristic Landscape Description
compares the
form, line, color, and texture of the land and vegetation with the structures.

Section C
Proposed Activity Description
Same comparisons

Section D
Degree of Contrast among the Features

This rating system determines the visual differences or similarities between the natural landscape and vegetation, and the industrial solar structures (activity). None or slight differences only,



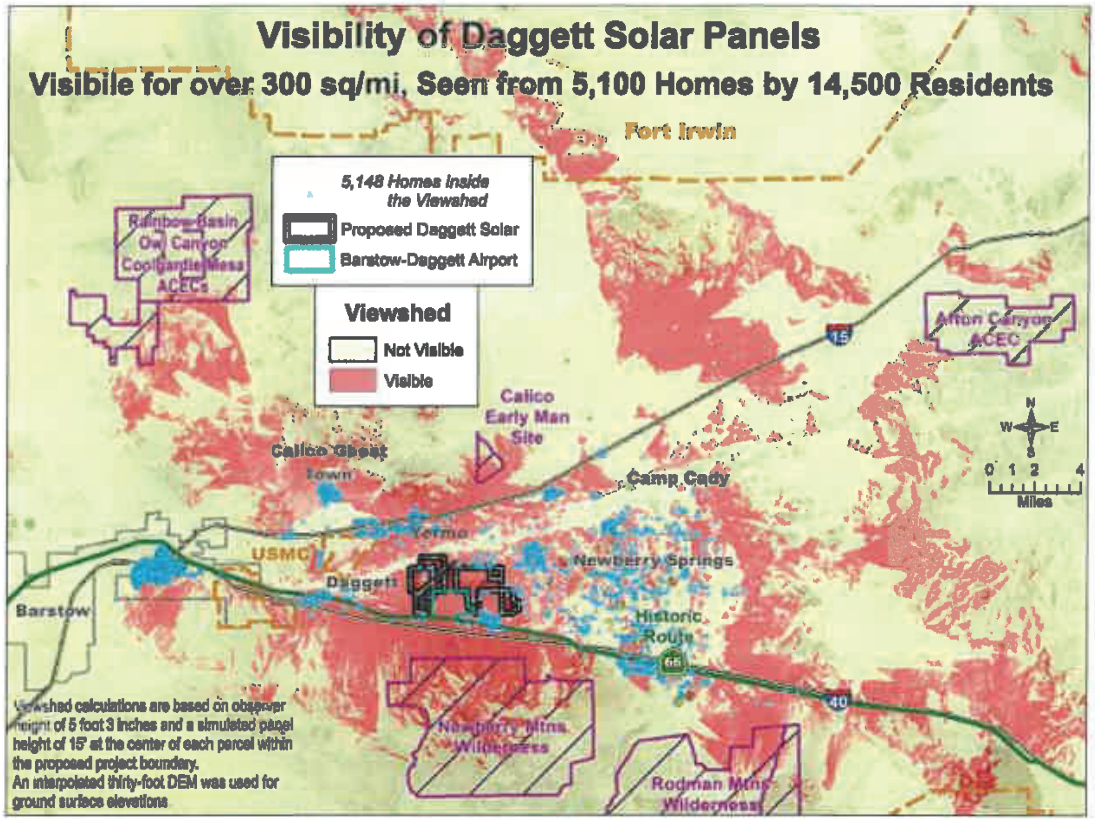
Comment
How would the VCR Worksheet analyze the picture to the left?

This photograph shows the 150-acres Cascade Solar structure near Joshua Tree Dry Lake in Joshua Tree. There is no problem distinguishing the landscape from the activity. The differences win out. The Black-throated Sparrow may find it more difficult. *Is that a lake where I can get a drink and snag a few insects?*

Photo 1
Credit: Deborah Bollinger

5 MBCA 4/29/2019

26B-15



This Visibility of Daggett Solar Panels
The Visibility map above was prepared by Brian Hammer, Professional Data/GIS analyst and Adjunct Professor, Victor Valley Community College, AG and Natural Resource Department.

The Daggett Solar Project will be a visible new source of light and glare from surrounding communities and elevations including the Newberry Mountains and Rodman Mountains Wilderness Areas, the Afton Canyon Area if Critical Environmental Concern (ACEC) (within Mojave Trails National Monument), Calico Early Man Site, Calico Ghost Town, and Rainbow Basin, Owl Canyon, and Coolgardie Mesa ACECs.

The average annual daily traffic on the I-15 at Yermo Road is approximately 43,000 vehicles (Caltrans 2016a). The average annual daily traffic on I-40 at A Street is 14,400 vehicles (Caltrans 2016a). (DEIR 3.1-5)

26B-16

Comment:
Bottom Line: If approved, the Daggett Solar Energy Project is in violation of the 2013 Solar Ordinance No. 4213, adopted into the SB CO Development Code Chapter 84.29 Renewable Energy Generation Facilities.

From the Ordinance – Sections bolded to emphasize the incompatibility of this Project with promises made to the communities and residents.
SECTION 1. The Board of Supervisors of the County of San Bernardino finds that:
(a) The County of San Bernardino **desires to protect the character and value of communities and neighborhoods, and the natural and scenic values of the landscape within the County, from increased impacts of new commercial solar energy generation facilities,** while providing safe and

6 MBCA 4/29/2019

reliable renewable energy to assist California and its investor-owned utilities in meeting the State's Renewable Portfolio Standards and its goals for reduction of greenhouse gas emissions.

(b) In protecting natural and scenic values of the landscape, the County recognizes not only the substantial intrinsic value of the desert's natural and scenic setting, but also the importance of this setting for the quality of life of area residents and the economic value it creates for the area's tourism industry.

(c) The County desires to guide new commercial solar energy generation facilities to areas that can accommodate such facilities with fewer human and environmental resource conflicts.

(d) In order to provide reasonable opportunities for commercial solar energy development and simultaneously protect communities, neighborhoods, and the natural and scenic values of the landscape, it is the intent of the County to focus new commercial solar energy development in areas that are both (1) less desirable for the development of communities, neighborhoods and rural residential use and (2) less environmentally sensitive.

26B-16

Cont'd

From the Development Code

84.29.035 Required Findings for Approval of a Commercial Solar Energy Facility.

(a) In order to approve a commercial solar energy generation facility, the Planning Commission shall, in addition to making the findings required under Section 85.06.040(a) of the San Bernardino County Development Code, determine that the location of the proposed commercial solar energy facility is appropriate in relation to the desirability and future development of communities, neighborhoods, and rural residential uses, and will not lead to loss of the scenic desert qualities that are key to maintaining a vibrant desert tourist economy by making each of the findings of fact in subdivision (c).

(c) The finding of fact shall include the following:

(1) The proposed commercial solar energy generation facility is either (A) sufficiently separated from existing communities and existing/developing rural residential areas so as to avoid adverse effects, or (B) of a sufficiently small size, provided with adequate setbacks, designed to be lower profile than otherwise permitted, and sufficiently screened from public view so as to not adversely affect the desirability and future development of communities, neighborhoods, and rural residential use.

26B-17

This project will:

(a) Have adverse and cumulative effects on the scenic vista and resources including Historic Route 66 (National Trails Highway), a County Scenic Highway

26B-18

(b) Compromise the desert tourist economy. In 2015 there were over half a million (589,156) visitors to the Mojave National Preserve that spent over 33-million dollars in communities near the park. That would be our High Desert Communities. That spending supported 486 jobs in the local area and had a cumulative benefit to the local economy of over 42-million dollars.[3] And that was before the dedication of the Mojave Trails National Monument with the Lavic Lake Volcanic Fields and Amboy Crater, areas of interest adjacent to I-40 east of Newberry Springs and Ludlow.

26B-19

(c) Financial stress and health issues

Homes adjacent to industrial solar sites are severely devalued and have failed to sell. Silver Valley would be affected by this phenomenon. Financial stress causes physical and emotional health issues.[4] For most people their homes are their largest asset and biggest investment. The sudden loss of equity would leave

[3] https://www.nps.gov/moja/learn/news/tourism-to-mojave-national-preserve-creates-nearly-43-million-in-economic-benefits-in-2015.htm

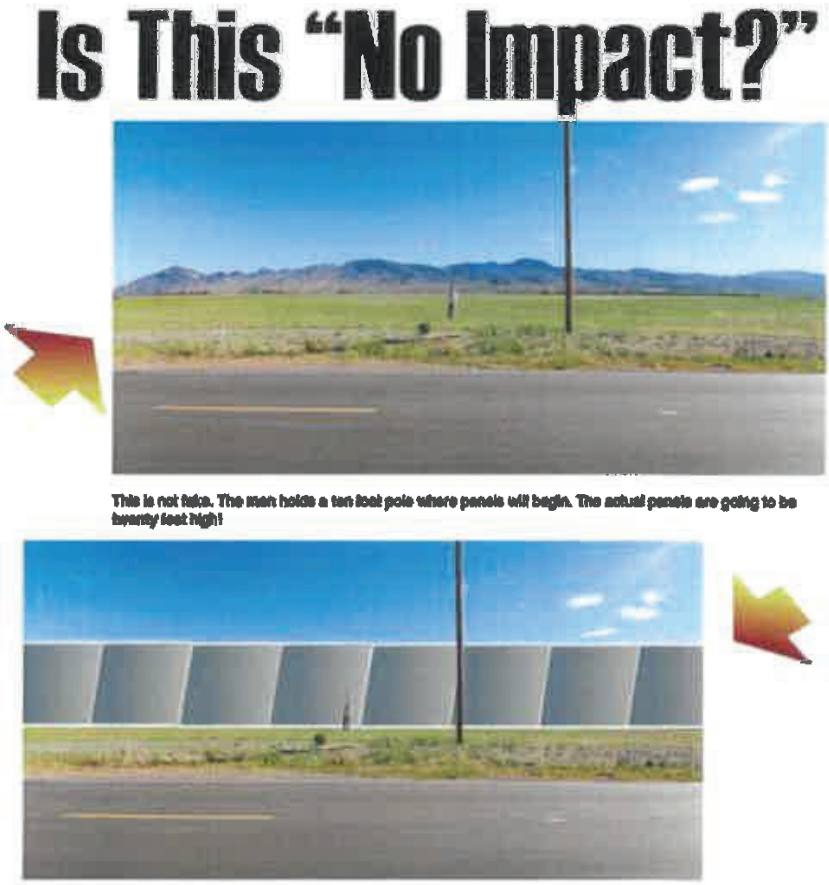
[4] Predictors of responses to stress among families coping with poverty-related stress Journal Anxiety, Stress, & Coping. An International Journal Volume 25, 2012 - Issue 3

7 MBCA 4/29/2019

26B-19 *Cont'd*

residents adjacent to the proposed Project site unable to secure loans at pre-project values and would affect residents' ability (should they choose) to sell their homes thereby inducing financial stress and potential health issues.

26B-20



Credit: Vickie Paulsen

26B-21

The visual effects of this Project, at the configured size of approximately 3,500 acres with 20-feet high solar panels, are not mitigatable by fencing, paint, or setbacks.

If approved, this Project must have Findings of Overriding Consideration that the benefits outweigh the environmental effects that cannot be mitigated must accompany an approval by the Planning Commission and Board of Supervisors.

Air-Quality (AQ)

26B-22

Blowing sand and dust in the Mojave River Valley is a constant topic for all those who live downwind in the area. Photos 2 and 3 below demonstrate the severity of the problem under current meteorological conditions. Rainfall in the area[5] does not alleviate the problem of blowing sand and dust.

[5] http://ceorange.ucanr.edu/about/weather/?weather=station&station=234

8 MBCA 4/29/2019



Photo 2: Credit: Robert Berkman. 4/6/2018 at 4:29 PM Looking North toward Daggett Airport. The sand blow begins within the footprint of the Project. Rainfall from Jan. through March 2018 was 0.6".

26B-22

Cont'd



Photo 3: Credit Robert Berkman, 4/9/2019 at 1:58 PM Looking North along Condor St. approximately 1/2 mile east of the Project boundary. Rainfall from Jan. through March 2019 was 2.87 inches.

9 MBCA 4/29/2019

26B-23

As expressed in the MBCA Scoping Comments experience has shown that the MDAWMD Fugitive Dust Control Rule 403.2, adopted in 1996 for the Mojave Desert Planning Area is not up to the task of taming dust blows over large graded areas in sand transport paths. The Rule was adopted when the projects were smaller in size; i.e. construction/demolition activity; heavily traveled publicly maintained unpaved Roads; and weed suppression activity. Local residents know that applications of water have little to no effect on the eolian sand in the Mojave River Valley. See Photos 3 & 4 above and not rainfall/year.

26B-24

The Project "site preparations would consist of clearing, grubbing, scarifying, recompacting, and grading to level the site and remove any mounds or holes that remain from previous land use." (DEIR Page 2-13) In total the project would grade 5,900,000 square yards which means any of the original plants including the creosote and saltbush in the undisturbed areas (about one-half of the project acreage) would be gone and the holding value of their roots with their living layer of microscopic algae, fungus, and bacteria which cement the soil surface together would be gone. [6], [7]

26B-25

The clip below was taken from Google Earth centered on the Project site and shows an agricultural field on the left and undisturbed desert on the right. A goodly portion of this project is undisturbed. Creosote rings are clearly visible in this area and many could easily pass the 10 feet or more in diameter test, putting some zeros in their age. These ancients have not been analyzed, a requirement under the 2007 General Plan and Development Code.

The Final EIR must evaluate the creosote rings within the Project area and follow the Development Code.

D/CO 1.3 Require retention of existing native vegetation for new development projects, particularly Joshua trees, Mojave yuccas and creosote rings, and other species protected by the Development Code and other regulations.



Creosote Rings

[6] Allen ME, Jenerette CD, Santiago LS, (2013) Carbon Balance in California Deserts: Impacts of Widespread Solar Power Generation. California Energy Commission Publication Number (CEC-500-2013-063. https://www.energy.ca.gov/2014publications/CEC-500-2014-063/CEC-500-2014-063.pdf

[7] Robin Kobaly, The Desert Under Our Feet. (March 2019) Desert Report. http://www.desertreport.org/

10 MBCA 4/29/2019

See Development Code 88.01.060 Desert Native Plant Protection

Air Quality (AQ) Impact 3.3-1
Finding: AQ Impact 3.3-1The project is potentially significant and unavoidable during construction because it will obstruct implementation of the applicable air quality plan. Mitigations AIR-1, AIR-2
Finding: AQ Impact 3.3-1 The project is potentially significant and unavoidable during construction because it will violate air quality standards and contribute substantially to an existing air quality violation. Mitigations AIR-1, AIR-2
Finding: AQ Impact 3.3-3 The project is potentially significant and unavoidable during construction because it will expose sensitive receptors to substantial pollutant concentrations. Mitigation AIR-3
Finding: AQ Impact 3.3-5 The project is potentially significant and unavoidable during construction because the project will result in cumulative impacts related to air quality. Mitigations AIR-1, AIR-2, AIR-3

26B-26

Comments
MBCA disagrees with these findings. The air quality impacts are significant and unavoidable during construction, operation, and following decommissioning and restoration.

During construction there will be *"clearing, grubbing, scarifying, recompacting, and grading to level the site and remove any mounds or holes that remain from previous land use… The following is a general estimate of the project's required grading by phase: Phase 1: 1,753,000 cubic yards; Phase 2: 1,888,000 cubic yards; Phase 3: 1,726,000 cubic yards; and gen-tie: 533,000 cubic yards."* (Page 2-13)

AND

"The conclusion that Potential health impacts resulting from construction emissions from the project would be minimal. First, construction activities are temporary and the emissions from construction activities would end once construction of the project is complete." (Page 3.3-22)

Once the native plants and agriculture areas are gone it is the nature of sand transport paths to blow unless stabilized. Following construction PM10 and PM2.5 particulates will continue to blow through the valley. Please see Photos 2 and 3 on page 9 for the baseline conditions. The potential health impacts are a permanent problem unless and until the soils are stabilized.

26B-27

The Project has no accurate baseline air quality data for PM10 and PM2.5
All calculations of the amounts of PM10 and PM2.5 that will be released during construction, operations, decommissioning and restoration are based on the Victorville monitoring station. Victorville is west of the Project. The wind disturbing the soils comes from the west, and, this shouldn't need saying, the PM10 and 2.5 blow eastward, away from the monitoring station. The MDAQMD is aware of this and has begun locating PurpleAir monitors in Newberry Springs. PurpleAir readings are continuous and a map is available on line. https://www.purpleair.com/map#14/34.83806/-116.68231
However, the monitors have not been up for long and the results can not be used for regulating.
In addition, we find no mention that monitors will be located on site during construction, operations, decommissioning, and restoration. No monitors, no data.

11 MBCA 4/29/2019

26B-28

Any increase in particulate matter has been linked to severe health issues and higher mortality rates. This increase is seen even if these PM levels are below currently acceptable limits.[8]

26B-29

Silica Dust

Grading of the proposed Daggett Solar site will expose all adjacent residents, construction workers and down-wind residents to potentially life-threatening silica exposure. In dry conditions hazardous exposer to silica dust can occur from grading and earth moving.[9] It only takes a very small amount of the very fine respirable silica dust to create a health hazard. Recognizing that very small, respirable silica particles are hazardous, OSHA regulation 29 CFR 1926.55(a). Inhaling crystalline silica can lead to serious, sometimes fatal illnesses including silicosis, lung cancer, tuberculosis (in those with silicosis), and chronic obstructive pulmonary disease (COPD).[10]

26B-30

Valley Fever

The DEIR dismisses the concern for Valley Fever. However, there is a known association of cases of coccidioidomycosis during PV solar construction in desert environments.[11] In the Antelope Valley and other areas of California, solar farms have already created a Valley Fever problem.[12] The cumulative extent of the Daggett Project soil grading along with construction of the proposed Projects in Lucerne Valley could become the open door for this serious disease. Rather than dismissal, caution and real concern is warranted.

26B-31

Mojave River as a Source of Dust

Per Newberry Springs resident Robert Shaw's DEIR comments (April 29, 2019)

> *" In reading the DEIR it seems very apparent to many of the residents in this community that the consultant hired by you is neither familiar with or schooled in the parameters involved in this proposed project. One good example is that the consultants have declared the Mojave River as insignificant with respect to the peroration of airborne particulate matter. Where in fact the Mojave River bed hasn't seen surface water in many years and is actually a gross source of PM2.5 in and around the communities referenced by the DEIR."*

MBCA requests that the FEIR show reference and application of the research by Julie Laity - Aeolian Destabilization along the Mojave River, California: Linkages Among Fluvial Groundwater and Aeolian Systems[13] in its conclusions.

---

[8] Shi L, Zanobetti A, Kloog I, Coull BA, Koutrakis P, Melly SJ, Schwartz JD. 2016. Low-concentration PM2.5 and mortality: estimating acute and chronic effects in a population-based study. Environ Health Perspect 124:46–52; http://dx.doi.org/10.1289/ehp.1409111

[9] Control of Silica Dust in Construction OSHA Fact Sheet, OSHA3937 www.osha.gov%2FPublications%2FOSHA3937 .pdf

[10] silica-safe.org http://www.silica-safe.org/ask-a-question/faq#question4 http://www.silica-safe.org/know-the-hazard/why-is-silica-hazardous

[11] Coccidioidomycosis among Workers Constructing Solar Power Farms, California, USA, 2011–2014 Jason A. Wilken et al Nov 2015 CDC Emerging Infectious Diseases Volume 21, Number 11—November 2015

[12] 3 http://articles.latimes.com/2013/apr/30/local/la-me-solar-fever-20130501 http://www.newyorker.com/magazine/2014/01/20/death-dust

[13] Julie Laity (2003) Aeolian Destabilization Along the Mojave River, Mojave Desert, California: Linkages Among Fluvial, Groundwater, and Aeolian Systems, Physical Geography, 24:3, 196-221 To link to this article: https://doi.org/10.2747/0272-3646.24.3.196

26B-32

Sensitive Receptors

Every resident east of the Project is a sensitive receptor when calculating the long-term health effects of increased PM10 and PM2.5 resulting for the construction, operations, decommissioning and restoration. The DEIR does not mention the sensitive 113 students attending Silver Valley Elementary School on Newberry Springs Road, directly east of the Project.

26B-33

Comment

The Final EIR should inform the decision makers and stakeholders that if the CUPS are approved by the Commissioners and Supervisors, Clearway Energy will proceed with construction of this Project despite the lack of air quality baseline data or on- site monitors in place to track air quality throughout the life of the project through restoration. See the notice below.

26B-34

The DEIR Dust Control Technical Memorandum Appendix D-2 page 3, footnote 1 *"San Bernardino County is in the process of issuing a Conditional Use Permit for Project #201700679, the Daggett Solar Project. "*

***"106. Dust Control – Operation. Prior to final inspection**, the Applicant shall develop an Operational Dust Control Plan that shall be approved and implemented prior to energization of the solar facility. The Operational Dust Control Plan shall include Dust Control Strategies sufficient to ensure that areas within the Project site shall not generate visible fugitive dust (as defined in Mojave Desert Air Quality Management District's [MDAQMD's] Rule 403.2) such that dust remains visible in the atmosphere beyond the property boundary. During high wind events, Dust Control Strategies shall be implemented so as to minimize the Project site's contribution to visible fugitive dust beyond that observed at the upwind boundary."*

Cart before the Horse: The Stakeholders in line to lose the most from this project have not seen the Dust Control Plan which the County LUS has apparently approved. It should be clear from these comments that the ***Prior to final inspection*** timing is too late!

26B-35

The Decision Makers and breathing Stakeholders have also not seen a restoration plan that has a promise of working. The Technical Memorandum Attachment 3, Draft Standard Vegetation – Revegetation Management Details is disappointing. It speaks of *managing the existing site vegetation*, which we have already noted will be cleared, grubbed, scarified, recompacted, and graded to level the site. The project will grade, in total, 5,700,000 cubic yards of earth. There will be nothing left of the existing site vegetation.

26B-36

The seed mixture to replenish the seedbanks includes annual spring blooming species and short-lived perennials. The restorers will use hydromulching and hand broadcasting to distribute the seeds. No irrigation will be used after the initial watering unless there are some long dry periods. It seems clear that professional desert restoration ecologists were not consulted when constructing this plan. The selected Spring annual plants represent those that are so abundant during a Super Bloom year. When was the last time in living memory that such abundance was seen? For many, like this writer, it has been decades if at all. It is usual to see some but not all present and not in numbers to prevent eolian erosion. The eolian erosion, long term, is prevented by shrubs such as creosote and saltbush and galleta grass that have developed the underground mycorrhiza colonies. The plan has no provision for developing a rich healthy soil which can take centuries. The restoration plan as detailed will not prevent eolian erosion.

26B-37

Comment

No grading permits should be issued with out public review of the Dust Control Plan to include site management during operation, decommissioning, and restoration. Too much is at stake to let this slip through the usual bureaucratic cracked channels.

13 MBCA 4/29/2019

26B-38 The Project should not be permitted without a requirement for an on-site meteorological station and dust monitors on the west and east sides of the Project.

Soiling – Dust on PV panels affecting power loss
An on-site meteorological station and dust monitors are also needed to study and measure the seasonal trends of soiling on PV panels. Soiling strongly depends on the conditions at a specific location and the power loss can be substantial. Soiling will also determine the cleaning methods and frequency which are dependent on water availability.

SOILING LOSSES: INTRODUCTION AND EFFECTS ON SOLAR MODULE[14]

26B-39 *The solar module in order to produce power requires direct irradiance (meaning that this light is directly coming from the sun).However, other than internal factors (such as refractive index of glass, refractive index of EVA, composition of glass, etc.) there are various external factors as well which affect the amount of irradiance entering the solar module. One such factor is soiling and the loss of power associated with such factor is known as soiling loss. Soiling refers to accumulation of soil, dust particles, etc. on the solar module. This soil accumulation hampers the solar irradiance to pass into the solar module. This primarily leads to reduction of power output from the solar module. This reduced power output may remain till the module is cleaned which may not be soon enough. The end result of soiling is that it leads to loss of money if not tackled properly. With a market where payback and economics are important, one cannot afford to lose money. Now with scheduling and forecasting regulations in place, the effect on plant owner would be two pronged i.e. first they would lose money due to reduced energy generation and secondly, they would have to pay deviation charges for the reduced generation (compared to what was forecasted/scheduled). Hence it is important to understand the factors effecting soiling, the factors that necessitate cleaning cycle and key takeaways. This article hence aims to educate its readers on the above matter.*

Biological Resources

MBCA is in receipt of the comments submitted by the Desert Tortoise Council (DTC) on April 26, 2019 and is in complete agreement. We, therefore, include by reference the DTC comments.

26B-40 3.4-4 The DEIR finds the Project will not significantly interfere with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. No impact would occur from this Project.

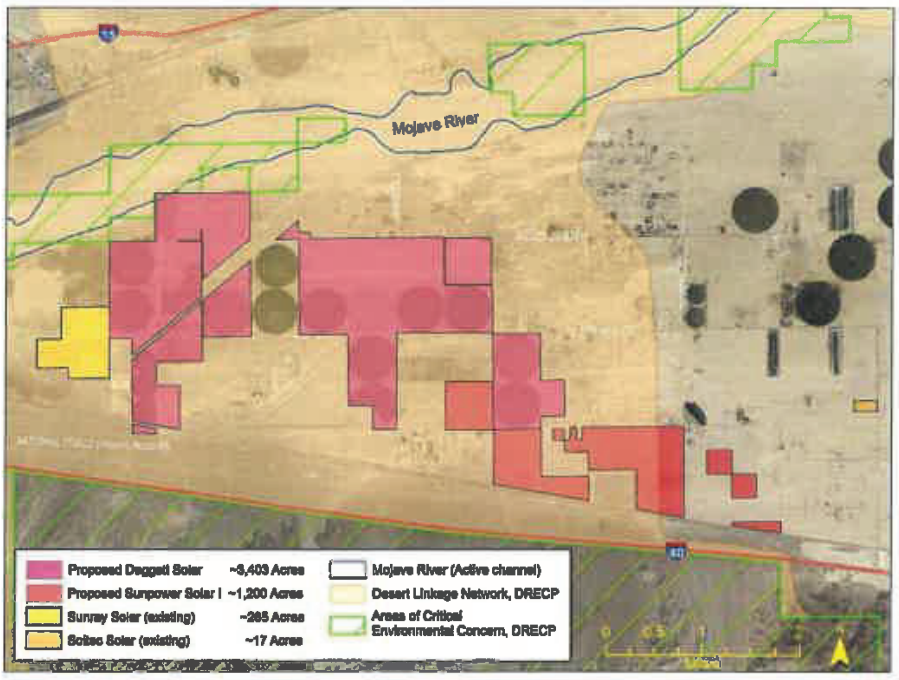
Comments
The justification provided in the DEIR for No Significant Impact is an opinion piece that is not supported by scientific data from the California Department of Fish and Wildlife or the U.S. Fish and Wildlife. The Daggett Solar Project blocks a significant portion of the passage land between the BLM ACEC to the south and link north across the Mojave River through Fort Irwin and to China Lake.

26B-41 The Final EIR must analyze the linkage design as it supports both passage and live-in areas related to the Project. It is important to work with the military bases since they have a requirement not to become islands of biodiversity. This requirement is supported by the linkage design. Below are two

[14] https://www.waaree.com/soiling-losses-introduction-and-effects

14 MBCA 4/29/2019

maps showing the location of the project in the California Desert Linkage Network and the linkage network as it relates to the California Desert.



Desert Linkage Network adopted by the DRECP



Clip from Figure 33 A Linkage Network for the California Desert
A project of SC Wildlands supported by the BLM. http://www.scwildlands.org/

26B-41

Cont'd

15 MBCA 4/29/2019

26B-42

Avian Resources

This 5.5 square mile Project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. This is known as the 'lake effect'.

The MBCA includes by reference the lengthy data rich comments [15]on bird deaths in desert PV projects provided by Kevin Emmerich co-founder of the non-profit Basin and Range Watch.

We add data here from eBird, an online database of bird distribution and abundance provided by Cornell Lab of Ornithology. Available: http://www.ebird.org. The benefit of the eBird data is that we can see the range of bird species that fly over the Project area day and night and further investigate species number by season, should we want. In Emmerich's comments we read (page 6) that one report on avian mortality in three unnamed solar projects was 1.7 birds/acre/year. It is worth knowing the possibility that avian mortality at Daggett project could reach the same 6,000 birds/year as the three unnamed projects.



This map shows 7 bird hotspots surrounding the Daggett Solar Project. Data retrieved from the hotspots is provided in the table below. Each area is identified by location, total number of bird species seen at that location, the number of reports uploaded that contribute to the number of species, and the date the data was accessed for this report.

#	Location	# of Species	# of Checklists	Date Accessed
1	Afton Canyon	143	77	April 29, 2019
2	Piute Road Dairy	125	131	April 29, 2019
3	Newberry Springs Vicinity	143	76	April 29, 2019
4	Daggett Evaporation Ponds (may now be dry)	152	286	April 29, 2019
5	Tees & Trees	155	206	April 29, 2019
6	Barstow WTP	161	137	April 29, 2019

[15] Basin and Range Watch comments April 29, 2019

16 MBCA 4/29/2019

26B-42 *Cont'd*

7	Barstow Comm. College	105	175	April 29, 2019

Noise

26B-43 Noise will be generated from the solar panel tracking motors, inverters, and the eddy current hum associated SCE Intertie substation. The resulting noise will easily carry across Silver Valley.[16]

Heat Island Effect

26B-44 The EIR dismisses the heat island effect. However, it has been found that PV power plants induce a 'heat island' (PVHI) effect, much like the increase in ambient temperatures relative to wildlands generates an Urban Heat Island effect in cities. Temperatures over a PV plant were regularly 3-4° C warmer than wildlands at night. [17]

MBCA appreciates this opportunity to comment on the Daggett Solar Project DEIR. We do feel that the time allotted to comment was seriously short because of the length and number of documents that had to be at least scanned to get a complete picture of construction activities, impacts, and mitigation measures. The Stakeholder went into this with limited background because the important Scoping process did not provide an Initial Study.

Our comments have been enriched by the thoughts and efforts of residents from
Newberry Springs:
Robert Berkman
Vickie Paulsen and her artist daughter
26B-45 Jack Unger
Robert Shaw
Ted Stimpfel
And community members that attended a study session on this Project

Lucerne Valley and beyond:
Brian Hammer – map maker and researcher who has had the time to read and sign on to these comments
Chuck Bell
Ken Lair
Robin Kobaly

Organizations:
Desert Tortoise Council – Ed LaRue
Basin and Range Watch – Kevin Emmerich

[16] As an example of solar site noise issues: Appendix F. Noise Assessment Campo Verde Solar County of Imperial. ftp://ftp.co.imperial.ca.us/icpds/eir/campo-verde-solara/33appf-noise-study.pdf.

[17] Greg A. Barron-Galord, Rebecca L. Minor, Nathan A. Allen, Alex D. Cronin, Adria E. Brooks & Mitchell A. Pavao-Zuckerman. The Photovoltaic heat island Effect: Larger solar power plants increase local temperatures. Scientific Reports 6. Article number: 36070 (2016) 13 October 2016.

17 MBCA 4/29/2019

Sincerely



Pat Flanagan, Board Member, Desert Heights
Member Morongo Basin Municipal Advisory Council

MBCA Board
President, Steve Bardwell, Pioneertown
Vice President, David Fick, Joshua Tree
Treasurer, Marina West, Landers
Past-President, Sarah Kennington, Pioneertown
Member, Meg Foley, Morongo Valley
Member, Mike Lipsitz, Flamingo Heights
Member, Seth Shteir, Joshua Tree

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26B MORONGO BASIN CONSERVATION ASSOCIATION

26B-1

Comment Summary:

This comment states that the Morongo Basin Conservation Association (MBCA) would like this letter to replace their previously submitted letter (Letter 26A).

Response:

This letter will replace the previously submitted letter. No further response is required.

26B-2

Comment Summary:

This comment is an introduction of the letter and describes the proposed project and a summary of the comments. The comment discusses consistency with the approved San Bernardino County Renewable Energy and Conservation Element (RECE). This comment also references the NOP scoping comments provide by MBCA.

Response:

The EIR provides a discussion of consistency with the RECE in Section 3.10, Land Use and Planning, beginning on page 3.10-7.

All comments received during the NOP review period are included in **Appendix A** of the EIR. The comments were categorized by issue and the most common environmental concerns were summarized in Section 1.0 Introduction; EIR Scope, Issues, Concerns of the EIR. Refer to the responses to the individual comments below.

26B-3

Comment Summary:

This comment cites Project Objective 1 of the EIR (Section 2.0, Project Objectives). The comment claims that investor owned utilities have already surpassed the 2017 annual Renewable Portfolio Standard (RPS) percentage target of 27 percent and then refers to Basin and Range Watch comments on page 2-3.

Response:

It is assumed that the commenter means to reference page 2-3 of the Basin and Range Watch letter (Letter 10). Therefore, please refer to Responses 10-3 and 10-4, provided above, regarding the RPS.

26B-4

Comment Summary:

This comment references Project Objective 2 and states that competitive cost is based on economies of scale and low land costs, and also states that rate payers bear transmission costs.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). Project feasibility is an appropriate project objective.

26B-5

Comment Summary:

The comment disagrees with Project Objective 7, which states that the project would support the economy by investing in the local communities, creating local construction jobs, and increasing tax and fee revenue to the County. The comment states that the energy would be sent out of state or over high fire zones and that transmission costs would be borne by the rate payer.

Response:

Future economics of the project and theoretical scenarios involving California's energy consumption are not evaluated under CEQA. There is a critical need to shift the overall energy portfolio towards increased renewables and away from carbon-based sources to combat global climate change. This shift in the overall energy portfolio benefits all of California, including local residents. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The commenter does not present information that materially affects the methods or findings of the EIR.

26B-6

Comment Summary:

This comment states that construction workers would be sourced from far away communities. The commenter states that the Final EIR must report the number of permanent jobs on-site.

Response:

Section 2.0, Project Description states the project would have on average 300 workers on-site during each phase of construction, depending on the activities. The peak number of workers on the project site at any one time is anticipated to be 500. The workforce would consist of laborers,

craftspeople, supervisory personnel, and support personnel. The Project Description does not indicate the project applicant would preferentially source workers from far away communities.

As also stated in Section 2.0, Project Description, during operations, the site would be staffed with full- and part-time employees such as a plant manager, maintenance manager, solar technicians, and environmental specialists. In addition, the operations would be monitored remotely via the SCADA system. The number of permanent employees is based on future project conditions and CEQA does not require the applicant to provide an exact number of permanent employees.

26B-7

Comment Summary:

This comment states that the improved value is not taxed, so the County would only receive a utility tax from the project.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not present evidence of a physical impact of the project.

26B-8

Comment Summary:

This comment states that the project would lower the property values of neighboring residences.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The commenter has not presented evidence of a physical impact of the project and does not present information that materially affects the methods or findings of the EIR.

26B-9

Comment Summary:

This comment states that undesirable industries tend to be located in poor and often minority neighborhoods.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be

considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not raise evidence of a physical impact from the project nor does it address the adequacy of the EIR.

26B-10

Comment Summary:

The comment expresses disagreement with the findings in Section 3.1, Aesthetics and Visual Resources of the EIR. The commenter states that the 20-foot-tall solar panels would have a devastating impact on residents' views of the landscape.

Response:

When measured from grade, the panels will be approximately 12 feet in height. The visual analysis in the EIR finds that the project would have less than significant impacts on the landscape from residential views. The impact discussion begins on page 3.1-55 of the DEIR. The comment does not provide substantial evidence to support the claim that findings in the EIR are inaccurate. Please refer to Master Response 7 regarding methods used in the visual analysis, such as the BLM VRM system.

26B-11

Comment Summary:

This comment provides Figure A1 from **Appendix B-1** of the EIR. The commenter states that the photo is deceptive rather than informative because the viewer cannot tell how tall the solar panels are in the photo.

Response:

The photograph provides an accurate depiction of a typical tracker panel configuration. Refer to Response 26B-10 and Master Response 7 for more information on the findings and methods used in the visual analysis.

26B-12

Comment Summary:

This comment provides Figure A2 from **Appendix B-1** of the EIR. The commenter states that the photo is deceptive because the man in the photo is the same height of the solar panels even though the solar panels for the proposed project would be 20 feet tall.

Response:

The purpose of Figure A2 is to provide representative depiction of the solar panel configuration. Visual simulations depicting the proposed project are provided in Section 3.1 of the EIR. Refer to Response 26B-10 and Master Response 7 for more information on the findings and methods used in the visual analysis. The photograph provides an accurate depiction of a typical tracker panel

configuration. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are inaccurate.

26B-13

Comment Summary:

This comment states that the on-ramp where KOP 2 was taken is substantially lower than the actual view of I-40 because the on-ramp increases in elevation towards I-40. The commenter states that the lower vantage point makes the project seem smaller in the distance than a viewpoint from I-40. The commenter states that the wide-angle KOP 2 photo does not represent a motorist viewpoint from I-40. The commenter also states that wide angle photos distort visual perspective by making foreground objectives and distances appear larger while making background objects appear smaller. The commenter then describes the calculations the commenter used to determine distances of objectives in the photo. The commenter states that the photo provides the false impression that the project's impact on the viewshed is negligible.

Response:

Photographs were taken from the on-ramp because the terrain and speed of traffic on I-40 made it unsafe for the photographer to stand closer to the highway. The views from the on-ramp are representative of views from I-40. However, in addition to the simulation provided in the Draft EIR and in response to comments received, a second visual simulation is provided as part of Master Response 7, which shows the views from a higher elevation. Refer to Master Response 7 for more information on the findings and methods used in the visual analysis.

26B-14

Comment Summary:

The comment cites the BLM Visual Contrast Rating Worksheet and disagrees with the finding that the project would not be distinguishable from the landscape.

Response:

Utilizing a recognized methodology, the Draft EIR properly concludes that the project would be not distinguishable from the landscape. The comment provides no evidence to refute the evidence, methodology, or findings in the Draft EIR. Refer to Master Response 7 for more information on the findings and methods used in the visual analysis.

26B-15

Comment Summary:

This comment provides a visibility map created by Brian Hammer. The commenter states that the project would create a new source of light visible from sites, such as the Newberry Mountains and Rodman Mountains Wilderness Areas and the Afton Canyon ACEC. The commenter then lists the average daily traffic on the I-15 at Yermo Road and I-40 at A street.

Response:

Refer to Master Response 6 for a response to this comment.

26B-16

Comment Summary:

This comment states that the project is in violation of the County Development Code Chapter 84.29 Renewable Energy Generation Facilities.

Response:

Please refer to Response 13-3 above regarding Chapter 84.29 Renewable Energy Generation Facilities.

26B-17

Comment Summary:

This comment states that the project would have an adverse and cumulative effect on scenic vistas and Historic Route 66.

Response:

The project would not conflict with scenic route designation for Route 66. Please refer to Response 14-1 regarding impacts to Historic Route 66.

26B-18

Comment Summary:

This comment states that the project would compromise the desert economy.

Response:

The EIR is not required to evaluate long- and short-term economic effects of the project on the local economy. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues.

26B-19

Comment Summary:

This comment states that the project would devalue home values near the project site.

Response:

The EIR is not required to evaluate long- and short-term economic effects of the project on local property values. CEQA requires an analysis of physical impacts to the environment; it does not

require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues.

26B-20

Comment Summary:

This comment provides a photo simulation of the project created by Vickie Paulsen.

Response:

Refer to Response 26B-10 and Master Response 7 for more information on the findings and methods used in the visual analysis. The simulation provided in the comment cannot be geospatially verified by the County to determine its accuracy and the simulation does not appear to be prepared by a photo simulation professional.

26B-21

Comment Summary:

This comment states that visual impacts cannot be mitigated by fencing, paints, or setbacks. The commenter states that the project must have Findings of Overriding Considerations that state that the benefits outweigh the environmental effects that cannot be mitigated. The commenter states that Findings of Overriding Considerations must be delivered to the Planning Commission and Board of Supervisors.

Response:

As described in Section 15093(b) of the CEQA Guidelines: "When the lead agency approves a project which will result in the occurrence of significant effects which are identified in the final EIR but are not avoided or substantially lessened, the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record. The statement of overriding considerations shall be supported by substantial evidence in the record."

As discussed in Section 3.1, Aesthetics and Visual Resources, of the EIR, visual impacts are considered less than significant, such that a related statement of overriding considerations would not be required. Refer to Response 26B-10 and Master Response 7 for more information.

26B-22

Comment Summary:

This comment provides two photos that illustrate the impacts of blowing sands and dust in the Mojave River Valley.

Response:

This comment provides a visual aid for the reader of the letter. Please refer to Master Response 1 for a discussion of fugitive dust related to the project and Master Response 8 for a discussion of windblown dust.

Per Mojave Desert Air Quality Management District (MDAQMD) requirements, the project applicant will develop a Dust Control Plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with binders, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion.

26B-23

Comment Summary:

This comment states that the MDAQMD Fugitive Dust Control Rule 403.2 is inadequate in mitigating blowing sands and dust because the rule was created when projects in the region were much smaller.

Response:

The project will comply with required fugitive dust rules imposed by the expert local agency and other required mitigation measures. As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures.

Per MDAQMD requirements, the project applicant will develop a Dust Control Plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with binders, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion.

26B-24

Comment Summary:

This comment states that the project would grade 5,900,000 cubic yards which means plants that hold the soils together would be gone.

Response:

The amount of grading was conservatively estimated based on grading twelve inches of ground across the entire site however that assumption has been revised and the majority of the site will not be graded, but rather will utilize the mow-and-roll (agricultural land) or plate-and-roll (native vegetation) site preparation techniques then be compacted, with only limited grading to primarily provide drainage basins, equipment foundations and roads. As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation

of mitigation measures **AIR-1** through **AIR-3** during construction. Decommissioning would include a revegetation plan; see mitigation measure **BIO-7**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures.

During construction, vegetation will not be removed from the proposed project site until the onset of a given construction activity. Within the solar field, vegetation will typically be disced under, mulched or composted, and retained on site to assist in erosion control and limit waste disposal. In some areas to be graded, native vegetation may be harvested for replanting to augment soil stabilization. Plant root systems will be left in place to provide soil stability except where grading and trenching are required for construction of drainage controls, underground electric lines, inverter and transformer pads, substation and O&M building pads, road and access ways, and other facilities.

The project site is flat, nearly level, and requires minimal grading to allow for installation of the PV panels. Areas comprising the solar field will be prepared using rubber-tired farming tractors towing discing equipment to disc the top 5 to 7 inches of soil. A water truck will follow closely alongside the tractor to moisten the soil to keep dust at or below acceptable levels. The tractor may make several passes to fully disc the vegetation into the top soil, preserving the underground root structure, top soil nutrients, and seed base. A drum roller will then be used to flatten the surface and return the soil to a compaction level similar to the preconstruction stage. The intent of the roller is to compact the soil under the solar field area and even out the surface after the discing is complete. Limited use of scrapers for micrograding will be employed only where needed to produce a more level surface than can be produced by the plate-and-roll technique. Also, limited grading will be required to construct stormwater detention basins, and to elevate equipment pads, substations and the O&M building above flood levels where required per the site hydrology study. The site's cut and fill would balance and no importing or exporting of materials would be necessary.

Preliminary project design would have resulted in 5 million cubic yards of soil moved during grading. However, based on the current updated design, the applicant plans to reduce the amount of grading on the site. Based on the current updated design, the following is a general estimate of the project's required grading by phase, including limited micrograding of array areas and construction of stormwater improvements and elevated pads, but not including discing and rolling of array areas: Phase 1: 200,000 cubic yards; Phase 2: 200,000 cubic yards; Phase 3: 150,000 cubic yards; and gen-tie: 10,000 cubic yards. Total grading would be approximately 560,000 cubic yards instead of the estimated 5 million cubic yards stated in the Draft EIR. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Also see Master Response 8 and Response 13-10 for more discussion on disturbance during grading.

Per MDAQMD requirements, the project applicant will develop a Dust Control Plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with binders, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion.

26B-25

Comment Summary:

This comment provides a photo from Google Earth of the project site. The commenter states that the project contains creosote rings that are protected under the 2007 General Plan and Development Code.

Response:

As stated in Table 3.4-1 of the EIR, creosote bush scrub alliance is found on 634.6 acres of the project site. No vegetation communities within the project area are designated as high priority by the CDFW or otherwise afforded special status for CEQA purposes. Specifically, creosote rings have no California Native Plant Society rare plant rank (1 through 4) or state sensitivity rating (S1-S3), however they are identified as a unique resource by San Bernardino County. Section F (Desert Region Goals and Policies of the Conservation Element) of the 2007 General Plan identifies Goal Desert/Conservation (D/CO) 1 as: "Preserve the unique environmental features and natural resources of the Desert Region, including native wildlife, vegetation, water and scenic vistas." The full text of Policy D/CO 1.3 cited by the comment provides:

> D/CO 1.3: Require retention of existing native vegetation for new development projects, particularly Joshua trees, Mojave yuccas and creosote rings, and other species protected by the Development Code and other regulations. This can be accomplished by:
>
> a. Requiring a landscape plan, approved as part of the location and development plan review and approval process for all new development projects.
>
> b. Requiring the Building Official to make a finding that no other reasonable siting alternatives exist for development of the land prior to removal of a protected plant.
>
> c. Encourage on-site relocation of Joshua trees and Mojave yuccas. However, if on-site relocation is not feasible require developers to consult a list that will be established and maintained in the County Building and Safety Office of residents willing to adopt and care for relocated trees.
>
> d. The developer/home builder shall bear the cost of tree or yucca relocation.
>
> e. Retention and transplantation standards will follow best nursery practices.

This goal is also addressed in County of San Bernardino Development Code Sections 88.01.050, -060, -070, and -080, which requires a Tree or Plant Removal Permit for removal of any regulated native trees or plants. Specifically, Section 88.01.060 (Desert Native Plant Protection) provides

regulations for the removal of regulated desert native plants, including creosote rings that are 10 feet or greater in diameter. Section 88.01.050 (Tree or Plant Removal Permits) indicates that the removal of regulated desert native plants in conjunction with a development permit (e.g., grading permit) requires approval from the Director of Land Use Planning. Such approval may be subject to verification via expert certification or preconstruction inspections. Authorization of removal would typically be provided if: "the location of the regulated tree or plant and/or its dripline interferes with an allowed structure, sewage disposal area, paved area, or other approved improvement or ground disturbing activity and there is no other alternative feasible location for the improvement" or "the condition or location of the regulated tree or plant is adjacent to and in such close proximity to an existing or proposed structure that the regulated tree or plant has or will sustain significant damage" (Section 88.01.050 (f) (1) (A)).

Approximately 70 creosote rings over 10 feet in diameter were identified within the project area based on review of the 2014 aerial photography available in Google Earth, with the largest concentration located at the southwest corner of Minneola and Valley Center Road (Figure 1). Project development requires removal of these creosote rings shown within the project area and no other reasonable siting alternatives exist for development of the land. The project will obtain a Development Permit and Tree or Plant Removal Permit for the removal of all creosote rings, in compliance with all County requirements. Creosote rings are not considered a special-status plant species beyond the protections provided by the County regulations discussed above (i.e., no California Native Plant Society rare plant rank (1 through 4) or state sensitivity rating (S1-S3)). The project will comply with all County ordinance and permit requirements and therefore this impact would remain less than significant, as noted in the Draft EIR.

26B-26

Comment Summary:

The comment expresses disagreement with Impact 3.3-1 of the EIR. The commenter states that impacts are significant and unavoidable. The commenter states that once the vegetation is gone the sand would be blown off-site which would cause PM10 and PM2.5 particulates to impact public health.

Response:

As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Master Response 1 regarding air quality impacts and mitigation measures. Refer to Master Response 4 for more information on the health risk assessment performed for the project. Refer to Master Response 8 regarding windblown dust. Refer to the Response 26B-24, above, for a discussion of the project grading and vegetation removal.

26B-27

Comment Summary:

This comment states that the project does not have an accurate air quality baseline because the data is based on data from the Victorville monitoring station which is west of the project. The commenter states that the MDAQMD has installed PurpleAir monitors in Newberry Springs, but they have not been installed long enough to record an accurate baseline.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, in the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Also, please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

26B-28

Comment Summary:

This comment states that particulate matter has been linked to severe health issues and higher mortality rates even if the PM levels are below acceptable limits.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, in the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Also, please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis and Master Response 3 for more information on the health risk assessment performed for the project.

26B-29

Comment Summary:

This comment states that grading during construction could expose residents and construction works to potentially life-threatening silica exposure.

Response:

Please refer to Master Response 1 for more information on air quality analysis and Master Response 3 for more information on the health risk assessment performed for the project.

26B-30

Comment Summary:

This comment states that the EIR dismisses concerns for Valley Fever.

Response:

As discussed in Section 3.3, Air Quality, of the EIR, the implementation of mitigation measures **AIR-1** and **AIR-2** would control fugitive dust emissions and limit the potential of exposure to Valley Fever (see Impact 3.3-3). Therefore, potential exposure to Valley Fever is reduced through implementation of dust control mitigation measures and standard MDAQMD rules. Please refer to Master Response 2 regarding Valley Fever.

26B-31

Comment Summary:

This comment references a comment received from Robert Shaw (Comment 59-3). The commenter then requests that the Final EIR include research by Julie Lalty - Aeolian Destabilization along the Mojave River.

Response:

Please refer to Response 59-3 regarding the comment referenced above.

26B-32

Comment Summary:

This comment states that every resident to the east of the project is a sensitive receptor for air long-term health effects of increased PM_{10} and $PM_{2.5}$. The commenter states that the Silver Valley Elementary School should have been included in the EIR as a sensitive receptor.

Response:

As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Please refer to Master Response 4 for more information on the health risk assessment performed for the project.

26B-33

Comment Summary:

This comment states that decision-makers and stakeholders should know that if the project is approved that project would be constructed despite the lack of air quality baseline.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, in the EIR. Please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

26B-34

Comment Summary:

This comment states that stakeholders have not seen the Dust Control Plan which the County has apparently approved.

Response:

Refer to Response 25-2. The cited text states that the County is 'in the process of issuing' a Conditional Use Permit, not that the County has approved a Dust Control Plan. Per MDAQMD requirements, the project applicant will develop a Dust Control Plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with binders, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion. The Dust Control Plan would be issued prior to final inspection as stated in mitigation measure **AIR-3**.

Please also refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust.

26B-35

Comment Summary:

The comment states that a restoration plan is not provided and that Technical Memorandum Attachment 3, Draft Standard Vegetation – Revegetation Management Details discusses managing existing vegetation after grading has already occurred.

Response:

Please refer to Response 26B-24 regarding grading and vegetation removal proposed for the project.

Additionally, as discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3** during construction. Please also refer to Master Response 1 regarding air quality impacts and mitigation measures.

Please refer to mitigation measure **BIO-7** on page 3.4-33 in Section 3.4, Biological Resources, of the EIR for a discussion of site revegetation.

26B-36

Comment Summary:

The comment expresses disagreement with the revegetation plan and the type of seeds to be used during revegetation.

Response:

As stated in mitigation measure **BIO-7** on page 3.4-33 in Section 3.4, Biological Resources, of the EIR, prior to commencement of the decommissioning phase, the project applicant shall prepare a revegetation plan as part of the Decommissioning Plan to identify performance standards necessary for revegetation of the site with native plants. The Decommissioning Plan shall specify success criteria, including, but not limited to, site preparation methods, installation specifications, maintenance requirements, and monitoring/report measures to ensure certain botanical thresholds are met such as adequate cover, density, and species richness. Standards of success shall include at least a 50 percent revegetation success rate compared to baseline conditions and shall include annual monitoring for 2 years. If 50 percent revegetation has not been achieved within 2 years due to lack of water or other environmental factors, the applicant shall work with the County to identify and implement an alternate solution to achieve the identified success rate or soil stabization.

Therefore, specific seed mix of the revegetation plan has yet to be approved. Furthermore, success rate criteria shall include annual monitoring and a 50 percent success rate which would ensure the site is properly revegetated after decommissioning and would encourage an appropriate seed mix and watering plan be implemented.

26B-37

Comment Summary:

This comment states that grading permits should not be issued until the public has reviewed the Dust Control Plan to ensure it includes site management during operation, decommissioning, and restoration.

Response:

Refer to Response 26B-24. The County is responsible for reviewing and approving Dust Control Plans. The project will comply with all dust control measures, including those in the implementing Dust Control Plan.

Per MDAQMD requirements, the project applicant will develop a dust control plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with binders, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion. Approval of the Dust Control Plan is in the purview of MDAQMD.

26B-38

Comment Summary:

This comment states that the project should not be approved without a requirement for an on-site meteorological and dust monitors on the west and east sides of the project.

Response:

Please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

26B-39

Comment Summary:

This comment states that the meteorological and dust monitors are also needed to study and measure the seasonal trends of soiling on PV panels.

Response:

As stated in Section 2.0, Project Description, the frequency of panel washing would be determined based on on-site observations of soiling of the PV panels and expected benefit from cleaning. Should cleaning be determined to be necessary, water would be sprayed on the PV panels to remove dust. An estimated 25 acre-feet per year of water would be necessary for panel washing (for all phases of the project or full 650 MW buildout). This water would be obtained from on-site wells.

26B-40

Comment Summary:

This comment states that the MBCA agrees with the comment provided by the Desert Tortoise Council (Letter 24). The commenter stated that findings in the EIR that No Significant Impacts would occur is "not supported by factual scientific data from the CDFW or the U.S. Fish and Wildlife." The commenter states that the project would block a linkage between the BLM Area of Critical Environmental Concern (ACEC) and Mojave River through Fort Irwin and to China Lake.

Response:

Please refer to responses to Letter 24. As stated under Impact 3.4-4 on page 3.4-34 in Section 3.4, Biological Resources, of the EIR, due to the intervening highways, roadways, and railroad, the active and historic cultivation of 54 percent of the project area, and the very small percentage of the site that qualifies as marginally suitable habitat, the project would not result in significant impacts related to the movements of native resident wildlife species, nor would it result in significant impacts to potential regional or local migratory wildlife corridors/linkages, nor would it impede the use of native wildlife nursery sites. This comment does not provide specific evidence to support the claim that the EIR is not supported by factual substantiation. Please refer to Letter 2A for biological comments and recommendations from the CDFW. The USFWS did not comment on the project.

26B-41

Comment Summary:

The comment states the EIR must analyze habitat linkages between the BLM ACEC and Mojave River to Fort Irwin and China Lake. The comment then provides two maps that show the location

of the project in the California Desert Linkage Network and the linkage network as it relates to the California Desert.

Response:

Please refer to response 26B-40 above regarding wildlife movement impacts.

26B-42

Comment Summary:

This comment states that the project would create a new source of substantial light or glare which would create the "lake effect." The commenter then provides links, maps, and data regarding bird mortalities related to the "lake effect."

Response:

Please refer to Response 2A-12 regarding avian impacts due to the "lake effect."

26B-43

Comment Summary:

This comment states that the project would generate noise that would carry across the Silver Valley.

Response:

As discussed in Section 3.11, Noise, of the EIR, noise impacts would be reduced to a less than significant level with implementation of mitigation measures **NOI-1** and **NOI-2**.

26B-44

Comment Summary:

This comment states that the project would induce a heat island effect.

Response:

As discussed in Impact 3.3-3, on page 3.3-23 of Section 3.3, Air Quality, in the EIR, a heat island occurs when changes to the landscape causes areas to become warmer than surrounding areas. The key to understanding urban heat islands is the concept of albedo, which is how much light bounces off a surface versus how much is absorbed. For the proposed project, the amount of light that is absorbed or reflected is dependent on the angle of the light. As the angle of the sun changes, the solar panel would absorb more and more sunlight. At solar noon, the albedo of the solar panel is nearly 0 and all the sunlight is absorbed and converted into electric or heat energy. However, bare ground and soil absorbs the same amount of sunlight regardless of the solar angle. Consequently, the bare ground around a solar panel would absorb more heat over the course of a day than the solar panel does. Therefore, as discussed in Impact 3.3-3, on page 3.3-23 of Section 3.3, Air Quality, in the DEIR, development of the project would decrease surface temperatures and would not result in a heat island and impacts would be less than significant. Please refer also

to Attachment 5 of **Appendix H-3** for additional information pertaining to urban heat island effects.

26B-45

Comment Summary:

This comment is the conclusion of the letter. The comment states that the public response period was short given the length of the document. The commenter also states that the public had limited background information because the scoping process did not provide an Initial Study.

Response:

Pursuant to CEQA Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of CEQA. Additionally, CEQA does not require the preparation of an Initial Study when the Lead Agency determines that an EIR is the appropriate level of analysis to comply with CEQA.

NSEDA
Newberry Springs Economic Development Association
P.O. Box 306 Newberry Springs, CA 92365

April 29, 2019

Tom Nievez, Contract Planner
San Bernardino Land Use Services Department
Tom.Nievez@lus.sbcounty.gov

Regarding the Draft Environmental Impact Report for the Daggett Solar Power Facility prepared by Michel Baker International,

Mr. Nievez,

At the request of NSEDA members and concerned citizens, NSEDA (Newberry Springs Economic Development Association) conducted two workshops and one informal meeting on the above referenced Draft EIR. The meetings were well-publicized with mass mailings and other public media at our disposal. The meetings were well attended by a broad spectrum of concerned citizens some of whom have responded in writing to issues of their choosing.

27-1 In order to respond within the allowed time limits and to preserve our right to participate further in a constructive dialogue regarding the Daggett Solar Power Facility, NSEDA and Concerned Citizens of Newberry Springs area submit this document as a partial summary of those comments.

It is the intent of this document to place on record our claim that we believe and claim that this Solar Power Facility, as submitted, will not benefit but will harm the community of Newberry Springs and that this EIR as presented is incomplete, contains substantial omissions and errors and is flawed in its whole by an obvious bias and prejudice against the wellbeing of citizens of Newberry Springs and the environment of the Mojave Valley; in favor, perhaps, of San Bernardino County revenues and, most certainly, corporate profits.

27-2 To support these claims we submit the following comments:
1. The people of Newberry Springs are not opposed to renewable solar energy. Many of us have wind or PV (photovoltaic) grid-tie systems and more than a few of us are totally off-grid.

27-3 2. The 45 day response time to a 7,400 page document by lay people may be legal but it limits the thorough review required and penalizes the affected residents.

27-4 3. As we read portions of the Draft EIR document we are struck by the level of unfamiliarity with our local area that the authors seem to be.

1

27-5 A. Dave Charlton, a resident and biologist, works on this type of projects and documents. After a brief review, Dave is impressed that the research was primarily on a literature search review vs. boots on the ground (my interpretation). He has written to you.

27-6 B. Section 3.2 Agriculture and Forestry Resources, ignores Newberry Springs even though phase 3 is in Newberry and borders the Minneola Neighborhood.

27-7 C. There are other experts on this area whose work was not referenced but should be. Pat Flanagan is a name I am sure you recognize. I have not noticed Julie Laity, CSU Northridge, referenced. Her work, ' AEOLIAN DESTABILIZATION ALONG THE MOJAVE RIVER, MOJAVE DESERT, CALIFORNIA: LINKAGES AMONG FLUVIAL, GROUNDWATER, AND AEOLIAN SYSTEMS' [1] is an eye opening study over many years how the loss of desert plants destabilize the desert sands. This solar project will definitely cause a critical loss of desert plants.

27-8 D. As required by ordinance 84.29 Renewable Energy Generation Facilities, and Chapter 810.11 San Bernardino Development Code, relating to the regulation of commercial solar energy generation facilities, the Newberry Community Services District was not notified of the release of this EIR.

27-9 4. Just as people living by the sea or in a forest develop a sense of place by their environment and specifically their view scape, so too do people living on the majestic Mojave Desert. This desert becomes a part of us and we become part of it. We develop a sense of place that we identify with.

27-10 A. Vickie Paulsen has composed a photo shopped view of our mountains shielded by the solar arrays. You have her letters concerning Aesthetics 3.1.

27-11 B. Veronica Shaw has referenced the Development Code 84.29.035 as it conflicts with the loss of scenic views created by this project. You have her letters.
How is erasing our desert view scape any different from blocking an ocean view or cutting down a forest?

27-12 5. The economic impact to the individuals and communities' affected by this size development are not noticed. Why?

27-13 A. Loss of permanent farm employment is estimated by a local grower to be 25 full time workers and 100 ancillary jobs. These workers and businesses are local and part of the local economy. Construction workers are temporary. What is spent buy construction will not be local. Reference: comments submitted at the EIR scoping meeting in Daggett.

27-14 B. John Griswold, (you have his letter) new to the area is purchasing a property in the Minneola neighborhood that is appraised professionally at about $40,000.00. When he consulted the appraiser about the change in property values should this project be completed, he was told his loss in value could be $5,000. - $10,000.00. A projected loss in property value of 12-25% is devastating to any community. Such a loss in property taxes, should the Minneola neighborhood be re-assessed, may significantly reduce the Newberry CSDs' ability to fund their obligations.

27-15 C. Additional costs for the Newberry, Daggett, Yermo, and Marine Base fire departments to train and equip for lithium battery events are not addressed.

27-16 6. Section 3.3 Air quality from blowing sand and dust is a very real concern addressed by Frances Rubel, Veronica Shaw, Victoria Paulsen, Brian Fisher, Paul Deel and many others whose letters you have.

2

27-17 A. The reference location for data on air quality is not taken from the affected area. It comes from Barstow, a town. Privately owned Purple Air monitors show the existing sand and dust is already so bad during high winds that it is a health issue to the point that some residences in the sand rivers are technically uninhabitable due to interior PPM2.5 and PPM10 readings.

27-18 B. Sand fencing doesn't work on the fine dust clouds lingering 100 ft up.

27-19 7. Section 3.7 Greenhouse gasses Transportation and Traffic issues are addressed by Brian Fisher. His analysis includes road use and greenhouse gases released by the increased traffic while building the sites. Has a complete environmental life cycle analysis been done for this project?

27-20 8. Section 3.4 Biological Resources Victoria Paulsen has addressed for us the biological impacts. The impact that loss of bird and other species populations may have on tourism, and the environment. She continues to remind us that the native plants can take 100's of years to reestablish themselves after the facility is torn down.

27-21 A. Migration corridors and the linkage network go right through the proposed site. See 'A Linkage Network for the California Deserts' [2].

27-22 9. Section 3.9 Hydrology and Water Quality Paul Deel challenges your dismissal of the transfer of free pumping allowance from the west to east side of the Baja Sub Area based on uncertainty what holders of those assets intend to do with them. The negative impact on the east side of the Newberry-Calico fault is severe.

27-23 10. Section 4.0 Alternatives to the Proposed Project Those who have put forward a preference toward the alternatives offered, seem to prefer Alternative 2 Limited size. However, what is missing from the alternatives (the elephant in the room) is the choice between Utility solar and distributed solar. It would seem that Southern California Edison has all the renewable solar energy they need till 2030 and don't need this facility's production to meet their mandate.

27-24 11. Community benefit After all these issues that will harm the environment, health, economy, and community, is there any benefit? This question was considered during Draft EIR workshops sponsored by NSEDA. Attendees could not think of any benefits to locals only to investors.
There are two benefits suggested to date that could be offered. 1. Secure the free pumping Allowances and place them in a trust held by the Daggett and Newberry CSDs'. 2. Land Use Services could give back the Water Conservation Ordinance taken during the adjudication.

Submitted on behalf of NSEDA and Concerned Citizens

Paul Deel, President NSEDA Newberry Springs Economic Development Association

References:
1. Julie Laity (2003) Aeolian Destabilization Along the Mojave River, Mojave Desert, California: Linkages Among Fluvial, Groundwater, and Aeolian Systems, Physical

Geography, 24:3, 196-221 To link to this article: https://doi.org/10.2747/0272-3646.24.3.196

2. Preferred Citation: Penrod, K., P. Beier, E. Garding, and C. Cabañero. 2012. A Linkage Network for the California Deserts. Produced for the Bureau of Land Management and The Wildlands Conservancy. Produced by Science and Collaboration for Connected Wildlands, Fair Oaks, CA www.scwildlands.org and Northern Arizona University, Fl

4

27 NEWBERRY SPRINGS ECONOMIC DEVELOPMENT ASSOCIATION

27-1

Comment Summary:

This comment provides an introductory discussion of workshops and meetings Newberry Springs Economic Development Association (NSEDA) held to discuss the EIR and description of the project as proposed. The comment states that NSEDA believes the project will not benefit and will harm the community of Newberry Springs. The comment further states that the EIR is incomplete, includes omissions, errors, and a bias against Newberry Springs residents.

Response:

Comment noted. This comment does not provide specific instances of omissions, errors, and/or bias that can be addressed specifically in this response. Refer to the individual responses below.

27-2

Comment Summary:

This comment states that the people of Newberry Springs are not opposed to renewable solar energy.

Response:

Comment noted. The comment does not raise any specific environmental concerns that can be addressed in this response.

27-3

Comment Summary:

This comment states that the 45-day review period limits the thorough review of the EIR.

Response:

Pursuant to CEQA Guidelines Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with the CEQA Guidelines.

27-4

Comment Summary:

This comment states that the preparers of the EIR are unfamiliar with the local area.

Response:

Comment noted. This comment does not provide specific instances of language in the EIR that demonstrate lack of familiarity or inadequacy of the EIR that can be addressed in this response.

27-5

Comment Summary:

The comment states that a local biologist named Dave Charlton said that the analysis in the EIR was primarily conducted through literature review instead of "boots on the ground."

Response:

The biological analysis described in Section 3.4, Biological Resources, in the EIR was conducted via both literature review and extensive on-site surveys. Please refer to Section 3.4, Biological Resources for more information on biological resource analysis methods.

27-6

Comment Summary:

This comment states that Section 3.2, Agricultural and Forestry Resources, of the EIR ignores Newberry Springs even though Phase 3 of the project is located within Newberry Springs and Mineola Neighborhood.

Response:

Section 3.2, Agriculture and Forestry Resources, of the EIR, includes a discussion of agricultural impacts within the project boundary, including Phase 3, and includes a summary of farmland categories in Table 3.2-1 on page 3.2-4, and a Farmland Map provided as Exhibit 3.2-2.

27-7

Comment Summary:

This comment references a previous study on desert plants by Julie Laity. The commenter also asserts that the project would definitely cause a critical loss of desert plants, which would destabilize soil.

Response:

As stated under Impact 3.4-1 in Section 3.4, Biological Resources, of the EIR, no special-status plant species were observed within the proposed development footprint on the project site. Therefore, no direct or indirect impacts are anticipated. Refer also to Master Response 8 for a discussion of construction methods to minimize removal of vegetation.

27-8

Comment Summary:

This comment states that the Newberry Springs Community Services District was not notified of the release of the EIR.

Response:

All noticing for the EIR was conducted in compliance with CEQA; County staff hand delivered a copy of he DEIR directly to Newberry Springs Community Services District. Please refer to Letter

1 from the State of California Governor's Office on Planning and Research State Clearinghouse and Planning Unit.

27-9

Comment Summary:

This comment discusses the community's connection with the desert.

Response:

Comment noted. The comment does not raise any specific environmental concerns within the EIR that can be addressed in this response.

27-10

Comment Summary:

This comment states that Vickie Paulson composed visual simulations and submitted a letter regarding aesthetics (Letters 52).

Response:

Please refer to the responses to Letters 52.

27-11

Comment Summary:

This comment states that Veronica Shaw has submitted a letter regarding conflicts with the loss of scenic views (Letter 57 and 58).

Response:

Please refer to the responses to Letters 57 and 58.

27-12

Comment Summary:

This comment questions why economic impacts of the project are not discussed in the EIR.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

27-13

Comment Summary:

This comment references the economic impacts of the project due to the loss of farm employment and the temporary nature of construction jobs. The comment also refers to comments submitted on the NOP during the scoping hearing.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

All comments received during the NOP review period are included in **Appendix A** of the EIR. The comments were categorized by issue and the most common environmental concerns were summarized in Section 1.0 Introduction; EIR Scope, Issues, Concerns of the EIR.

27-14

Comment Summary:

This comment references the potential changes to property values as result of the project.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

27-15

Comment Summary:

This comment references the economic impacts to the Newberry, Daggett, Yermo, and Marine Base fire departments as result of the project's installation of lithium battery storage.

Response:

Please refer to response to letter 6-3. As described in Section 3.14 of the DEIR, all battery components for the proposed energy storage component would be installed on concrete pads and contained within an enclosure to minimize the potential for sparks or ignition to occur. Further, all such enclosures would be equipped with a fire detection system. The project is not expected to result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other

performance objectives for fire services. Impact 3.8-7 in Section 3.8, Hazards and Hazardous Materials, of the EIR, describes potential impacts due to fire risks associated with on-site battery storage. The impacts are determined to be less than significant, such that mitigation measures are not required.

27-16

Comment Summary:

This comment states that Frances Rubel, Veronica Shaw, Victoria Paulson, Brian Fisher, and Paul Deel have sent letters regarding air quality impacts from blowing sand and dust.

Response:

Please refer to responses to Letters 31-35, 38-44, 51, and 57. Please also refer to Master Response 8.

27-17

Comment Summary:

The comment states that the air quality monitoring station data used in the EIR is not taken from the affected area. The commenter states that the privately owned PurpleAir monitoring station shows that sand and dust are already causing health issues.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, of the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Please refer to Master Response 3 for more information on the health risk assessment performed for the project. Please refer to Master Response 4 for more information on air quality monitoring stations.

27-18

Comment Summary:

The comment states that sand fencing does not work with fine dust clouds are 100 feet up in the air.

Response:

Sand fencing is effective because it slows sand movement and directs it to locations where there are no residences. Use of sand fencing is one of a series of mitigation measures required that would effectively mitigate fugitive dust impacts to less than significant levels. Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Master Response 1 regarding air quality impacts and mitigation measures.

Additionally, an adequate baseline for air quality impacts is provided in the EIR. Refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

27-19

Comment Summary:

This comment states that Brian Fisher's letter (Letters 38 through 44) discusses impacts associated with road use and greenhouse gases. The commenter then asks if a complete environmental life cycle analysis was performed for the project.

Response:

Please refer to the responses to Letters 38 through 44.

27-20

Comment Summary:

This comment states that Victoria Paulson's letter (Letter 51) discusses biological impacts from the project, such as the loss of bird and other species populations. The comment states the biological impacts can impact tourism. The commenter also states that native plants are difficult to reestablish.

Response:

Please refer to the response to Letter 51. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

27-21

Comment Summary:

This comment states that wildlife migration corridors and linkage networks go right through the project.

Response:

Impact 3.4-4 in Section 3.4, Biological Resources, of the EIR discusses movement of wildlife and wildlife migratory corridors. The discussion states that due to the intervening highways, roadways, and railroad, the active and historic cultivation of 54 percent of the project area, and the very small percentage of the site that qualifies as marginally suitable habitat, the project would not result in significant impacts related to the movements of native resident wildlife species. Based on this analysis, the project would not result in significant impacts to potential regional or local migratory wildlife corridors/linkages, nor would it impede the use of native wildlife nursery sites.

27-22

Comment Summary:

This comment states that Paul Deel's letter (Letters 31 through 35) discusses water impacts associated with transferring water allowances from the west to the east side.

Response:

Please refer to the responses to Letters 31 through 35.

27-23

Comment Summary:

The comment states that Section 4.0, Alternatives to the Proposed Project should consider the choice between utility solar and distributed solar. The comment includes an assertion that Southern California Edison (SCE) has enough renewable power to meet their mandates through 2030.

Response:

As stated in Section 4.0, Alternatives to the Proposed Project of the EIR, Section 15126.6(a) of the CEQA Guidelines requires that an EIR describe a range of reasonable alternatives to the project, or a range of reasonable alternatives to the location of the project, that could feasibly attain the basic objectives of the project. An EIR does not need to consider every conceivable alternative project, but it does have to consider a range of potentially feasible alternatives that will facilitate informed decision-making and public participation.

As further indicated in Section 4.0, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project. There is a critical need to shift the overall energy portfolio towards increased renewables and away from carbon-based sources to combat global climate change. This shift in the overall energy portfolio benefits all of California, including local residents. Utility-scale solar projects provide a reliable source of renewable energy for SCE's portfolio.

27-24

Comment Summary:

The comment states that the project would not benefit the community. The comment also indicates that a community benefit could be offered through limiting water use on the site by putting free pumping allowances in a trust held by the community service districts and/or putting a Water Conservation Ordinance back into effect.

Response:

Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Letter 3 (Watermaster Letter). Impact 3.9-2 in Section 3.9, Hydrology and Water Quality, of the EIR discusses impacts to groundwater supplies, including several potential scenarios for future use of the existing production rights. **Appendix I-3** includes a Water Supply Assessment for the project, with detailed information regarding free production allowances (FPA) and project impacts on water use. Impacts related to groundwater supplies are conservatively assumed to be significant and unavoidable because the County could not compel any actions by the Watermaster to adjust FPA or take other actions to address declining groundwater levels east of the Calico-Newberry Fault.

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2019 MAY -7 AM 10: 31
LAND USE SERVICES
ADMINISTRATION

April 29, 2019

Via Regular Mail and Email

Tom Nievez, Contract Planner
County of San Bernardino
Land Use Services Department
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Phone: (909) 387-5036
Email: Tom.Nievez@lus.sbcounty.gov

Re: Protest re draft Environmental Impact Statement/Environmental Impact Report for the proposed Daggett Solar Power Facility, Project Number P201700679

Dear Mr. Nievez:

28-1 My law firm represents Save Our Mojave, a 501(c)(3) non-profit organization working to raise public awareness about some of the most pressing issues facing California's deserts, including unchecked damage to the environment and wildlife. Pursuant to California law, Save Our Mojave makes the following requests:

REQUEST FOR NOTICES:

28-2 My client hereby requests to be included in all notices related to the proposed Daggett Solar Power Facility (the "Project"). Specifically, please send to Save Our Mojave, care of my law firm, notice of any and all actions or hearings related to activities undertaken, authorized, approved, permitted, licensed, or certified the Bureau of Land Management and any of its subdivisions, and/or supported, in whole or in part, through contracts, grants, subsidies, loans or other forms of assistance from the Bureau of Land Management, that are connected in any way to the Project, including, but not limited to the following:

- Notice of any public hearing in connection with the Project.
- Any and all notices prepared pursuant to the California Environmental Quality Act ("CEQA") and involving the Project including, but not limited to:
- Notices of any public hearing held pursuant to CEQA and related to the Project.

- Notices of determination that an Environmental Impact Report ("EIR") or supplemental EIR for the Project is required or finalized, prepared pursuant to Public Resources Code Section 21080.4.
- Notices of availability of an EIR for the Project or a negative declaration for the Project prepared pursuant to Public Resources Code Section 21152 and Section 15087 of Title 14 of the California Code of Regulations.
- Notices of approval and/or determination to carry out the Project, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notice of approval or certification of any EIR or negative declaration for the Project prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notice of exemption from CEQA for the Project prepared pursuant to Public Resources Code section 21152 or any other provision of law.
- Notice of any Final EIR for the Project prepared pursuant to CEQA.

28-2 *Cont'd*

Please note that Save Our Mojave is requesting notices of CEQA actions and notices of any public hearings to be held in connection with the Project under any provision of Title 7 of the California Government Code governing California Planning and Zoning Law. This request is filed pursuant to Public Resources Code Sections 21092.2, and 21167(f) and Government Code Section 65092, which require the County to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.
Please send notice by mail and electronic mail to:

Law Offices of John A. Belcher
150 East Colorado Boulevard, Suite 215
Pasadena, California 91105
Phone: (626) 577-5771
Fax: (626) 577-7769
Email: johnbelcher@insuringlaw.com

REQUEST FOR PUBLIC RECORDS:

Save Our Mojave also requests access to records in your possession either electronically (if you have such documents in electronic form) or for the purpose of inspection and copying pursuant to the California Public Records Act (Government Code Section 6250 et seq.). The information she requests is as follows:

- Any and all application documents associated with the Project.
- Any and all staff emails related to the Project.

28-2 *Cont'd*

- Any and all correspondence with developer related to the Project.
- Any and all contracts related to the Project.

28-3 This request reasonably describes identifiable records. To our knowledge, there is no express provision of law exempting the records from disclosure. Pursuant to Government Code § 6253.9 (see Appendix A hereto), Save Our Mojave requests that you provide the documents in electronic format at no cost. The documents should be sent care of the Law Offices of John A. Belcher to the following email address: johnbelcher@insuringlaw.com

28-4 If you do not have such records electronically, pursuant to Government Code § 6253(b), please make the records available for inspection and copying, based on our payment of "fees covering direct costs of duplication, or statutory fee, if applicable."

Thank you for your timely attention to this request. Do not hesitate to contact me if my office can be of assistance to you as you assemble these documents.

Sincerely,

John A. Belcher

California Government Code § 6253.9 — Information in Electronic Format

(a) Unless otherwise prohibited by law, any agency that has information that constitutes an identifiable public record not exempt from disclosure pursuant to this chapter that is in an electronic format shall make that information available in an electronic format when requested by any person and, when applicable, shall comply with the following:

(1) The agency shall make the information available in any electronic format in which it holds the information.

(2) Each agency shall provide a copy of an electronic record in the format requested if the requested format is one that has been used by the agency to create copies for its own use or for provision to other agencies. The cost of duplication shall be limited to the direct cost of producing a copy of a record in an electronic format.

(b) Notwithstanding paragraph (2) of subdivision (a), the requester shall bear the cost of producing a copy of the record, including the cost to construct a record, and the cost of programming and computer services necessary to produce a copy of the record when either of the following applies:

28-5

(1) In order to comply with the provisions of subdivision (a), the public agency would be required to produce a copy of an electronic record and the record is one that is produced only at otherwise regularly scheduled intervals.

(2) The request would require data compilation, extraction, or programming to produce the record.

(c) Nothing in this section shall be construed to require the public agency to reconstruct a record in an electronic format if the agency no longer has the record available in an electronic format.

(d) If the request is for information in other than electronic format, and the information also is in electronic format, the agency may inform the requester that the information is available in electronic format.

(e) Nothing in this section shall be construed to permit an agency to make information available only in an electronic format.

(f) Nothing in this section shall be construed to require the public agency to release an electronic record in the electronic form in which it is held by the agency if its release would jeopardize or compromise the security or integrity of the original record or of any proprietary software in which it is maintained.

(g) Nothing in this section shall be construed to permit public access to records held by any agency to which access is otherwise restricted by statute.

28 SAVE OUR MOJAVE

28-1

Comment Summary:

This comment provides an introductory discussion and description of the Save Our Mojave organization.

Response:

Comment noted. The comment does not raise any environmental concerns that can be specifically addressed in this response.

28-2

Comment Summary:

This comment requests to be included in all future public noticing regarding the project. The comment additionally requests access to all documents, emails, correspondence, and contracts related to the project under the authority of the California Public Records Act.

Response:

Comment noted. The comment does not raise any environmental concerns that can be specifically addressed in this response.

28-3

Comment Summary:

This comment requests the electronic provision of the documents and materials identified in comment 28-2 at no cost.

Response:

All EIR documents and appendices are available on the County's website. The County will respond to other public records requests appropriately in accordance with applicable laws. The comment does not raise any environmental concerns that can be specifically addressed in this response.

28-4

Comment Summary:

This comment requests all documents that are not available electronically to be made available for inspection and copying.

Response:

Comment noted. The comment does not raise any environmental concerns that can be specifically addressed in this response.

28-5

Comment Summary:

This comment contains an excerpt of California Government Code 6253.9.

Response:

Comment noted. The comment does not raise any environmental concerns that can be specifically addressed in this response.

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LAND USE SERVICES
ADMINISTRATION

April 29, 2019

Via Regular Mail and Email

Tom Nievez, Contract Planner
County of San Bernardino
Land Use Services Department
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415
Phone: (909) 387-5036
Email: Tom.Nievez@lus.sbcounty.gov

Re: Protest re draft Environmental Impact Statement/Environmental Impact Report for the proposed Daggett Solar Power Facility, Project Number P201700679

Dear Mr. Nievez:

This law firm represents Save Our Mojave, a 501(c)(3) non-profit organization working to raise public awareness about some of the most pressing issues facing California's deserts, including unchecked damage to the environment and wildlife.

29-1

Save Our Mojave has reviewed the Draft Environmental Impact Report ("EIR") for the proposed Daggett Solar Power Facility (the "Daggett Project") for the construction and operation of a 650 megawatts (MW) solar power plant and a 450 MW energy storage facility. According to the draft EIR, 3,500 acres would be occupied by major components of this project. The Daggett Project will also disturb large tracts of land during construction.

After investigation and after review of publicly available documents, Save Our Mojave believes that the draft EIR does not sufficiently analyze the impact of the Daggett Project, especially in light of its close proximity to other power generating facilities in the region. As the draft EIR itself notes,

29-2

> The project area is in proximity to existing high voltage electrical infrastructure, existing energy generation facilities, and other industrial uses. These include the existing non-operating Coolwater Generating Station, a 626 MW natural gas–fired power plant, the 44 MW photovoltaic Sunray Solar Project, several high-voltage substations and transmission lines owned by Southern

California Edison (SCE), the Los Angeles Department of Water and Power (LADWP) high-voltage transmission corridor of approximately 1,000 feet in width, major highway and railroad infrastructure, and Barstow-Daggett Airport.

29-2 *Cont'd*

The EIR, however, does not adequately account for the cumulative impact of the surrounding projects. Indeed, the 44 MW Sunray Solar Project which sits on 333 acres is adjacent to the proposed Daggett Project and has a history of toxic spills. Thus, the draft EIR must be rewritten to reflect the full environmental impacts of the surrounding projects in full.

29-3

"CEQA does not require technical perfection in an EIR, but rather adequacy, completeness, and a good-faith effort at full disclosure." CEQA Guidelines § 15003(I). Absent complete environmental impact analysis of the cumulative effect of the surrounding energy generating and transmitting facilities, the draft EIR is not a "good faith effort at full disclosure."

A. CEQA Requires A Description Of The "Whole Project"

29-4

An EIR is "a document of accountability. If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees." Laurel Heights Improvement Assn. v. Regents of University of California, 47 Cal. 3d 376, 392 (1988). The purpose of an EIR is "to inform the public and its responsible officials of the environmental consequences of their decisions before they are made." Laurel Heights Improvement Assn. v. Regents of University of California, 6 Cal. 4th 1112, 1123 (1993). That can only happen if a EIR describes the "whole project." Habitat & Watershed Caretakers v. City of Santa Cruz, 213 Cal. App. 4th 1277, 1297-98 (2013). Failure to describe the whole project violates CEQA by denying the public the "most accurate information practically possible." Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, 57 Cal. 4th 439, 461 (2013).

The term "project" must be "interpreted in such a manner as to afford the fullest possible protection to the environment." Friends of Mammoth v. Board of Supervisors, 8 Cal.3d 247, 259 (1972). CEQA defines the term "project" broadly, as the "whole of the action." Habitat & Watershed Caretakers v. City of Santa Cruz, 213 Cal.App.4th 1277, 1297 (2013); Citizens Ass'n for Sensible Dev. of Bishop Area v. County of Inyo, 172 Cal. App. 3d 151, 165 (1985); see also 14 Cal. Code Regs. ("CEQA Guidelines") § 15378(c),(d).

B. Piecemeal Review Violates CEQA

A corollary to CEQA's "whole project" rule is that developers cannot chop large projects into smaller ones and obtain "piecemeal" approval of each piece. See, e.g., Rio Vista Farm Bureau Ctr. v. County of Solano, 5 Cal. App. 4th 351, 370-71 (1992) (CEQA's purposes are not served "by piecemeal review which results from chopping a large project into many little ones — each with a minimal potential impact on the environment — which cumulatively may have disastrous consequences."); Burbank-Glendale-Pasadena Airport Authority v. Hensler, 233 Cal.App.3d 577, 592 (1991) (same); Bozung v. LAFCO, 13 Cal. 3d 263, 283-84 (1975) (same); Plan for Arcadia v. City Council of Arcadia, 42 Cal. App. 3d 712, 726 (1974) (same); see also Berkeley Keep Jets Over the Bay Com. v. Board of Port Cmrs., 91 Cal. App. 4th 1344, 1358 (2001) (discussing piecemealing in light of CEQA's purposes). **29-5**

"Responsibility for a project cannot be avoided by limiting the title or description of the project." Rural Land Owners Ass'n v. Lodi City Council, 143 Cal. App. 3d 1013, 1025 (1983). "A narrow view of a project could result in the fallacy of division . . . that is, overlooking its cumulative impact by separately focusing on isolated parts of the whole." McQueen v. Bd. of Dirs. of the Mid-Peninsula Reg 7 Open Space Dist., 202 Cal. App. 3d 1136, 1143 (1988); see also Santiago County Water Dist. v. County of Orange, 118 Cal. App. 3d 818, 829-30 (1981) (discussing harms that result from piecemeal review). **29-6**

There are different types of piecemealing. In some instances, piecemealing occurs in a single timeframe, when a developer improperly passes off two or more simultaneous developments as separate projects for CEQA purposes when they are really one project. See, e.g., Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora, 66 Cal. Rptr. 3d 645, 656 (2007). In other instances, piecemealing can occur over time, when a developer attempts to chop up one project into ostensibly separate phases, even though each phase is actually a foreseeable part of the same project. See, e.g., Laurel Heights Improvement Association v. Regents of University of California, 47 Cal. 3d 376, 396 (1988). In the latter scenario, a developer must include all foreseeable phases of the project in the same EIR, even if he already managed to obtain CEQA approval for the first phase. Developers do not get a free pass on "phase 2" of a project just because they slipped "phase 1" by the public in a piecemeal fashion. See Arviv Enterprises, Inc. v. South Valley Area Planning Commission, 125 Cal. Rptr. 2d 140, 145, 149-50 (2002) (rejecting an attempt to piecemeal a portion of a larger project and required an EIR for the full project even though a portion of the project had already been completed). **29-7**

C. The Daggett Project EIR Glosses Over Key Facts About A Neighboring Project

The Daggett Project EIR fails to disclose crucial facts that are relevant to CEQA's piecemeal doctrine. The fact that the 333 acre, 44 MW Sunray Solar Project is adjacent to the Daggett Project is buried deep in the EIR.

29-8 Save Our Mojave believes that the cumulative environmental impact of the Daggett Project and the Sunray Solar Project must be addressed together for the following reasons:

- They are nearly adjacent to one another.
- They share the same purpose. Both projects are solar sites that exist to generate electricity.

29-9 The nearest designated Critical Habitat for desert tortoise is only 1.25 miles from the Daggett Project site. The local fauna in the area is already impacted by the 333 acre Sunray Solar Project. The addition of a project that is more than 10 times as large will make it much harder for local fauna to flourish, by fragmenting their habitat and limiting their ability to migrate and disperse.

D. The EIR Fails To Address Key Factual Questions About The Relationship Between The Daggett Project and the Sunray Solar Project

Each application of CEQA's piecemealing doctrine is fact-intensive. See Laurel Heights, 47 Cal. 3d at 396 ("Under this standard, the facts of each case will determine whether and to what extent an EIR must analyze future expansion or other action."); accord Banning Ranch Conservancy v. City of Newport Beach, 211 Cal. App. 4th 1209, 1222 (2012).

29-10 The EIR fails to answer many important and highly relevant questions about the relationship between the Daggett Project and the Sunray Solar Project. Save Our Mojave believes that, at a minimum, the EIR should answer the following relevant questions about the operating relationship between the Daggett Project and the Sunray Solar Project, because each is highly relevant to the piecemealing inquiry:

- What aspects of development, maintenance, and operation will these two facilities share?

29-11 • How will the development, maintenance, and operation of these two facilities be managed in order to mitigate dust, traffic and water usage?

29-12 • Will the Daggett Project and the Sunray Solar Project share any infrastructure?

29-13 • Are the Daggett Project and the Sunray Solar Project parties to any legal agreements? Which agreements? What do those agreements provide?

29-14 • Will the Daggett Project benefit from any previously obtained legal approvals gained by the Sunray Solar Project, and vice versa?

29-15 • Are the Daggett Project and the Sunray Solar Project "connected" in any other sense? How?

E. The Two Projects Will Negatively Effect the Environment

29-16 The Daggett Project and the Sunray Solar Project will create serious environmental problems. Whether these problems are considered "cumulative impacts" or simply the effects of one very large multi-phase project, they must be made known. See Rialto Citizens for Responsible Growth v. City of Rialto, 208 Cal. App. 4th 899, 928-29 (2012) (describing appropriate scope of cumulative impacts analysis); Bakersfield Citizens for Local Control v. City of Bakersfield, 124 Cal. App. 4th 1184, 1198 (2004) (describing appropriate scope of EIR's significant impacts analysis).

29-17 As written, the EIR glosses over the aggregate environmental impacts of the Daggett Project and the Sunray Solar Project and misleads the reader through words such as "may" and "potentially." The cumulative effect of the two projects is definite and should be considered together. The EIR, however, does not conduct an appropriate "cumulative impacts" analysis showing how the two projects, taken together, will affect the environment.

1. Compromised Air Quality

29-18 The project will most likely result in significantly compromised air quality. The land rush of large solar projects all over the southwestern US has resulted in expedited approval of many of these projects. In most of the cases, the developers have not adequately mitigated the fugitive dust that has resulted in the removal of large acreages of vegetated desert lands.

29-19 Large solar projects in desert areas are very bad for air quality. Removal of stabilized soils and biological soil crust creates a destructive cycle of airborne particulates and erosion. As

more stabilized soils are removed, blowing particulates from recently eroded areas act as abrasive catalysts that erode the remaining crusts thus resulting in more airborne particulates.

29-19 Cont'd

Industrial construction in the region will compromise the air quality to the point where not only visual resources, but public health will be impacted. The Daggett Project will then have no choice but to use more water in an already overdrafted aquifer to control the large disturbance they intend to create.

2. Excessive Water Usage

The EIR states that the water use for construction would be 1,800 acre-feet of water per year. In large desert construction projects, however, there is commonly a request and a need to use additional water due to low humidity and extreme temperatures. For example, the Desert Sunlight Solar project to the east was approved by BLM to use 1,507 acre feet of water for construction. That went up after the original approval of 1,407 acre feet. In 2014, the developer requested to use an additional 50 acre feet to complete construction of the project and transmission hookups. The BLM approved this even though the USGS stated that the water comes from a fossil aquifer and would not be recharged.

29-20

Similarly, Save Our Mojave fears that the Daggett Project will use substantially more water than it currently estimates. Moreover, because the project may use onsite wells, Save Our Mojave believes that the Daggett Project will use substantial amount of fossil groundwater in the region. Such significant water usage will harm native plant life in the area, including honey mesquite groves, screwbean, and pinyon.

29-21

3. The Desert Tortoises and Mojave Fringe-Toed Lizards

During the construction, endangered animals such as the desert tortoises and the Mojave fringe-toed lizards are in danger of being killed by road work, blading of desert and truck transport on new roads in the desert. Surveys along the Colorado River Substation access road associated with the Devers to Palo Verde 2 (DPV2) transmission line project in 2012 and 2013 showed a mortality rate of one fringe-toed lizard killed per day in the project construction area. The cumulative effect of so much traffic during the construction period will only lead to higher and higher mortality for these reptiles.

29-22

Generally, with such a large cumulative impact of solar projects in the region and the resulting destruction of habitat for the desert tortoises and the Mojave fringe-toed lizards, there is simply not enough land to maintain and support a healthy population. Moreover, the sheer

29-23

29-23 Cont'd number of the proposed projects increase the already fragmented distribution of these reptiles and increase the risk of extirpation of isolated populations.

F. The Daggett Project EIR Must Be Rewritten And Recirculated

29-24 For all of the reasons stated above, the Daggett Project and the Sunray Solar Project are properly considered the same project under CEQA. The Daggett Project EIR must be rewritten to encompass all the environmental impacts of the Daggett Project and the Sunray Solar Project. It is no matter that one project may be further along in its development that the other. See Arviv Enterprises, Inc. v. South Valley Area Planning Commission, 125 Cal. Rptr. 2d 140, 145, 149-50 (2002) (required an EIR for a full project even though a portion of the project had already been completed).

29-25 At a minimum, the cumulative impacts analysis for the Daggett Project EIR must be rewritten in its entirety, since it misleads the reader as to the impact of the Daggett Project. Only a rewritten cumulative impacts analysis will allow the public to understand the true cumulative impacts of the two projects.

Sincerely,

John A. Belcher

29 SAVE OUR MOJAVE

29-1

Comment Summary:

This comment provides an introductory discussion of the project and description of Save Our Mojave.

Response:

Comment noted. The comment does not raise any environmental concerns that can be specifically addressed in this response.

29-2

Comment Summary:

This comment states that the EIR does not properly analyze the cumulative environmental impact of the project due to its close proximity to other power generating facilities. The comment states that the EIR must be rewritten to address the cumulative impact of the nearby projects and refers specifically to the 44 MW Sunray Project.

Response:

Cumulative analyses are provided in the relevant sections of the EIR. Please refer to Section 3.0, Introduction to Environmental Analysis; Cumulative Impact Evaluation for more information on the cumulative analysis selection process and impact determination. The 44 MW Sunray Project is included as Project Number P201400484 in Table 3.0-1 and as Map Number 25 on the Cumulative Projects Map included as Exhibit 3.0-1. This comment does not provide specific examples of insufficient cumulative analyses which can be addressed in this response. Refer also to Response 29-11.

29-3

Comment Summary:

This comment provides information from CEQA Guidelines Section 15003(I) regarding good faith efforts at disclosure and states that the EIR does not provide a good faith effort at full disclosure.

Response:

This comment does not provide specific examples of insufficient analyses or disclosure that can be addressed in this response.

29-4

Comment Summary:

This comment states that CEQA requires a complete description of the “whole project,” and provides CEQA case law citations and examples.

Response:

This comment does not provide specific examples of insufficient analyses or disclosure that can be addressed in this response. Refer also to Response 29-11.

29-5

Comment Summary:

This comment states that developers cannot piecemeal projects together to obtain approval and cites relevant CEQA case law.

Response:

This comment does not provide specific examples of insufficient analyses or disclosure that can be addressed in this response. Refer also to Response 29-11.

29-6

Comment Summary:

This comment states that the project description must adequately describe the whole project in order to completely and accurately represent the project and cites relevant CEQA case law.

Response:

This comment does not provide specific examples of insufficient analyses or disclosure that can be addressed in this response. Refer also to Response 29-11.

29-7

Comment Summary:

This comment describes different forms that piecemealing projects may take and cites relevant CEQA case law.

Response:

This comment does not provide specific examples of insufficient analyses or disclosure that can be addressed in this response. Refer also to Response 29-11.

29-8

Comment Summary:

This comment states that the EIR does not adequately address the cumulative impact when including the adjacent Sunray Solar Project. The comment states that the projects must be addressed together due to their similar uses and close proximity.

Response:

Sunray Energy 2 (Sunray Solar Project) is included in the cumulative analysis in the EIR (see Table 3.0-1 and Exhibit 3.0-1 Cumulative Project in Section 3.0, Introduction to Environmental Analysis

of the EIR). Analysis of cumulative impacts for each resource in Sections 3.1 through 3.14 include the Sunray Solar Project. Refer also to Response 29-11.

29-9

Comment Summary:

This comment states that Critical Habitat for desert tortoise occurs 1.25 mile from the project site and that the project will impact local fauna by fragmenting existing habitat and limiting migration and dispersal patterns.

Response:

Section 3.4, Biological Resources, of the EIR includes a discussion of the project's impacts to flora and fauna. Please also refer to Responses 2A-6 through 2A-8 regarding desert tortoise impacts and mitigation measures and Responses 29-8 and 29-11.

29-10

Comment Summary:

This comment states that the EIR does not address the relationship between the project and Sunray Solar. The comment asks what processes will be shared between the two facilities.

Response:

The Sunray Solar facility is an independently owned existing solar facility and separate from the Daggett Solar Power Facility. As such, the two facilities will not share development, maintenance, nor operational facilities or activities. Refer also to Response 29-11.

29-11

Comment Summary:

The comment asks if the development, maintenance, and operation of the Daggett Solar Power and Sunray Solar facilities will be managed in order to mitigate dust, traffic and water usage.

Response:

The Sunray Solar facility is an existing solar energy facility and is independently owned and managed and not connected to the Daggett Solar Power Facility. Therefore, compliance issues related to that facility would be managed separately from the Daggett Solar Power Facility. The County and relevant regulatory agencies would oversee compliance with laws and regulations related to dust, traffic, and water usage at the Sunray facility.

Sunray is an existing solar energy facility and is fully constructed and operational. Sunray is not owned or managed by the project proponent, but the County will ensure that both projects comply with dust control and traffic mitigation measures as appropriate. Fugitive dust is addressed in Section 3.3, Air Quality, and traffic is discussed in Section 3.12, Transportation and Traffic. Water demands from operational photovoltaic solar projects are also minimal. In addition, water usage is strictly regulated through a Stipulated Judgment adjudicating the basin

and implemented by the Mojave Basin Watermaster; this issue is discussed in detail in Section 3.9, Hydrology and Water Quality and the Water Supply Assessment included as **Appendix I-3**.

In analyzing the impacts of the Daggett Solar Power Facility, the County considered the existing conditions in the project area, including those at the existing Sunray facility. Drainage plans, access and other aspects of the Daggett Solar Power Facility's design were reviewed within the context of the conditions on the project site as well as in the surrounding area. The Daggett Solar Power Facility's design, construction and operations activities were designed to be carried out in a desert environment with minimal vegetation, sandy soils, high winds and water constraints. In addition, mitigation measures were included to avoid or minimize impacts to a less than significant level. As part of the County's process, compliance with mitigation measures will be monitored and enforced including those measures intended to address dust, traffic and water usage. Therefore, contrary to the commenter's assertion, the two projects are independent, and each will be managed by the County to mitigate dust, traffic and water usage.

29-12

Comment Summary:

The commenter asks if the Daggett Solar project and the Sunray Solar project would share any infrastructure.

Response:

The Daggett Solar Power Facility and the Sunray facility are separate facilities and will not share any infrastructure. Refer also to Response 29-11.

29-13

Comment Summary:

The commenter asks if the Daggett Solar project and the Sunray Solar project are parties to any legal agreements.

Response:

According to the project proponent, the Daggett Project and the Sunray Solar Project are not parties to any legal agreements. Refer also to Response 29-11.

29-14

Comment Summary:

The commenter asks if Daggett Solar project would benefit from any previously obtained legal approvals gained by the Sunray Solar project and vice versa.

Response:

For purposes of this response, it is assumed the "legal approvals" in the comment refers to land use approvals. The Daggett Solar Power Facility will not benefit from any previously obtained land use approvals granted by the County to the Sunray Solar Project and vice versa. The two

projects are in separate locations, are owned by separate owners, and there are no connected land use approvals. Refer also to Response 29-11.

29-15

Comment Summary:

The comment asks if the Daggett Solar project and the Sunray Solar project are "connected" in any other sense.

Response:

The Daggett Solar project and the Sunray Solar project are not connected. Refer also to Response 29-11.

29-16

Comment Summary:

This comment states that the Daggett Solar project and Sunray Solar project would create serious environmental problems and result in cumulative impacts.

Response:

This comment does not provide specific examples of environmental projects or cumulative impacts that can be addressed in this response. Sunray Energy 2 (Sunray Solar Project) is included in the cumulative analysis in the EIR (see Table 3.0-1 and Exhibit 3.0-1 Cumulative Project in Section 3.0, Introduction to Environmental Analysis of the EIR). Analysis of cumulative impacts for each resource in Sections 3.1 through 3.14 include the Sunray Solar Project. As described in Responses 29-11 through 29-15, the Daggett Solar project and the Sunray Solar project are independent from each other.

29-17

Comment Summary:

This comment states that the EIR "glosses over the aggregate environmental impacts of the Daggett Solar project and Sunray Solar project." The comment states that the EIR does not contain appropriate cumulative impact analysis.

Response:

Sunray Energy 2 (Sunray Solar Project) is included in the cumulative analysis in the EIR (see Table 3.0-1 and Exhibit 3.0-1 Cumulative Project in Section 3.0, Introduction to Environmental Analysis of the EIR). Analysis of cumulative impacts for each resource in Sections 3.1 through 3.14 include the Sunray Solar Project. As described in Responses 29-11 through 29-15, the Daggett Solar project and the Sunray Solar project are independent from each other.

29-18

Comment Summary:

This comment states that the project would most likely result in significantly compromised air quality.

Response:

As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Please refer to Master Response 4 for more information on the health risk assessment performed for the project.

29-19

Comment Summary:

This comment states that the project would result in air quality impacts that would impact visual resources and public health. The commenter states that the project would be forced to use more water from the over drafted aquifer to mitigate those impacts.

Response:

As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures, Master Response 4 for more information on the health risk assessment performed for the project, and Master Response 5 regarding water rights and potential impacts to the groundwater basin.

29-20

Comment Summary:

The comment expresses disagreement with the project's estimated water usage listed in the EIR.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Response to Comments to Letter 3 (Watermaster letter).

29-21

Comment Summary:

The comment expresses disagreement with the project's estimated water usage listed in the EIR. The commenter states that the project would use substantial amount of groundwater in the region. The commenter states that the additional water extraction would impact native plant life.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Comments to Letter 3 (Watermaster letter).

29-22

Comment Summary:

This comment states that the project would result in an increase to desert tortoise and Mojave fringe-toed lizard mortalities via road construction and truck transport on new roads.

Response:

The discussion included in Impact 3.4-1, beginning on page 3.4-21 of Section 3.4, Biological Resources, includes information related to direct and habitat-related impacts to desert tortoise and Mojave fringe-toed lizard. Please also see the Responses 2A-6 through 2A-8 for a discussion of desert tortoise impacts and Response 2A-9 for further discussion of impacts to Mojave fringe-toed lizard.

29-23

Comment Summary:

This comment states that the project would fragment desert tortoise and Mojave fringe-toed lizard habitat and increase the risk of extirpation of isolated populations.

Response:

As stated in the discussion of Impact 3.4-4 beginning on page 3.4-34 of Section 3.4, Biological Resources, of the EIR, due to the intervening highways, roadways, and railroad and the active and historic cultivation of 54 percent of the project area, a very small percentage of the site qualifies as marginally suitable habitat, and the project would not result in significant impacts related to the movements of native resident wildlife species. This analysis includes potential mortalities from road collisions.

Refer to Response 29-22.

29-24

Comment Summary:

This comment states that the EIR must be rewritten because the Daggett Solar project and the Sunray Solar project should be considered the same project under CEQA.

Response:

As described in Responses 29-11 through 29-15, the Daggett Solar Project and the Sunray Solar Project are independent from each other. All analyses in the EIR were properly conducted and therefore revisions and/or recirculation is not warranted. This comment does not provide new information that challenges the adequacy of the EIR.

29-25

Comment Summary:

This comment states that the cumulative analyses in the EIR must be rewritten. The comment is the conclusionary statement of the letter.

Response:

Cumulative analyses are provided in the relevant sections of the EIR. Please refer to Section 3.0, Introduction to Environmental Analysis; Cumulative Impact Evaluation for more information on the cumulative analysis selection process and impact determination. Analysis of cumulative impacts for each resource is included in Sections 3.1 through 3.14.

Nievez, Tom

From: gaye burch <gayeburch199@gmail.com>
Sent: Monday, March 18, 2019 9:22 AM
To: Nievez, Tom

Dear Tom,

30-1 Please do not do this Daggett solar power field. This solar field will be one mile from my home of 40 years. The desert used to be a lush green desert with water and food for all of the wild life. It was amazing way back when. Since the damming of the Mojave River, it has little by little declined and the wildlife has slowly died off. Eagles, Owls, Fox, Coyotes, Skunk, big Horn sheep, bobcats, quail, and roadrunners, …to name a few, have slowly become extinct in the desert. It is so sad. What is really sad is people in legislation think that they are protecting wildlife out here, but they are not. They need to have lived out here, year after year, to see the actual facts.

The fact is: This proposed solar plant will "DO US IN". It will destroy what is left, in this area, of any sort of nature and wild life.

30-2 Please do not do this!

If those who are pushing for this solar plant saw that the proposed plans had changed and they were going to put up this monstrosity in THEIR back yard, I think they would ferociously oppose and do everything in their ability to stop this from happening. However, it is not in their back yard and will not affect them; hence the destructive planning for the solar plant continues.

Please do not do this!

30-3 I understand money speaks volumes and many times at the expense of peoples lives.

This is not a good thing. It is bizarre that people actually think it is. To us, who live here, it seems like a hurricane, flood, or wildfire coming our way. It is a destruction that we are trying to stop and can't because our hands are tied. It will ruin our homes, lives, and health.

Please do not do this!

30-4 According to easy-to-find statistics, Edison does not need any more power. They are having trouble using the solar power they have already stored.

Please do not do this in our neighborhood. If no one will listen and the people in charge continue to go ahead with this destruction, than please do it where people and animals will not be so negatively affected.

Sincerely,

Gaye Burch 34653 Sandi lane, Newberry Springs, 92365 760-265-2390

30 GAYE BURCH

30-1

Comment Summary:

The comment voices opposition to the project based on wildlife impacts.

Response:

The discussion included in Impact 3.4-1, beginning on page 3.4-21 of Section 3.4, Biological Resources of the DEIR, includes information related to direct and habitat-related impacts to wildlife. As discussed in Section 3.4, all biological impacts would be reduced to a less than significant level with mitigation.

30-2

Comment Summary:

The comment voices opposition to the project based on proximity to the commenter's property.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns that can be addressed in this response.

30-3

Comment Summary:

The comment voices opposition to the project.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns that can be addressed in this response.

30-4

Comment Summary:

The comment voices opposition to the project based on proximity to the commenter's property and effects on humans and wildlife.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns that can be addressed in this response.

Utility Scale Solar placed in deserts may increase global warming

Paul Deel 4/20/2018

Utility scale renewable energy solar fields clear the ground of vegetation. Even though the developers claim to prevent vegetation destruction by various plans, the areas are denuded by the time the project is completed. Where do you see a solar farm with natural vegetation?

31-1 When land is cleared of vegetation, cooling by evapotranspiration and shading stops and ground superheating occurs. The results are: A. the heat island effect and B. de-carbonization of organic materials above and below the ground surface.

A. Heat islands are land areas warmer than the surrounding land areas causing hotter and higher pressure air columns that modify local weather patterns.

31-2

1. Cooler lower pressure rain systems are diverted over or around the rising columns of warm air causing desertification to increase in an ever growing area.

2. Studies are showing that higher ambient atmospheric temperatures hold water vapor in suspension preventing it from rising to the troposphere where it would have cooled to return as precipitation.

Since atmospheric water vapor is the number one greenhouse gas (60%) responsible for global warming it can be reasoned that (1) reducing vegetation increases ambient atmospheric temperatures that (2) holds more water vapor which (3) increases global warming.

31-3 B. Desert organic materials do not decompose, they decarbonize. De-carbonization of ground organics i.e. plants, roots etc. is caused by superheated ground temperatures and low moisture. This results in (1) loss of ground stabilization from erosion caused by rain and wind and (2) the inability of rain to be absorbed into the ground. (3) The release of organic carbon into the atmosphere is a minor (4%) greenhouse gas that is credited for creating global warming.

In conclusion: The goal of renewable solar energy is to reduce global warning by replacing fossil fuel generators.
However, massive utility scale solar farms in the desert:

31-4
1. Modify local weather
2. Increases desertification
3. Increases, not decreases global warming

The challenge of the EIR is to address these critical issues.

Reference: "Water for the Recovery of the Climate – A New Water Paradigm"
Authors: M. Kraveik, J. Pokorny, J. Kohutiar, M. Kovac, and E. Toth
31-5 http://www.waterparadigm.org/download/Water_for_the_Recovery_of_the_Climate_A_New_Water_Paradigm.pdf
Year of publication 2007

31 PAUL DEEL

31-1

Comment Summary:

This comment states that the project would clear the ground of vegetation which would result in the "heat island effect and de-carbonization of organic materials above and below the ground surface."

Response:

Please refer to Response 26B-44 regarding the heat island effect.

31-2

Comment Summary:

This comment describes the heat island effect.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

31-3

Comment Summary:

This comment describes the decarbonization of ground organics resulting in erosion, decreased surface permeability, and release of greenhouse gases.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

Impact 3.9-2 in Section 3.9, Hydrology and Water Quality, of the EIR, describes that the project would not substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial on- or off-site erosion, such that impacts would be less than significant.

As discussed in Section 3.3, Air Quality, of the EIR, air quality impacts, including greenhouse gas emissions, would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures.

31-4

Comment Summary:

This comment states the utility scale solar farms in the desert modify local weather, increase desertification, and increase global warming.

Response:

As described in Response 26B-4, the project would not modify the local weather. The majority of the project site would not be graded and therefore, would not result in desertification because vegetation would be allowed to remain and/or reestablish on-site . The purpose of the project is to provide clean renewable energy to the state's electrical grid instead of other carbon-intensive energy sources; therefore the project would not result in an increase to global warming.

31-5

Comment Summary:

The comment provides a reference and link to a study cited in the letter.

Response:

Comment noted. The comment does not address the adequacy of the EIR or raise any specific environmental concerns that can be addressed specifically in this response.

Nievez, Tom

From: Paul Deel <deelplum1@gmail.com>
Sent: Monday, April 15, 2019 9:31 PM
To: Nievez, Tom
Cc: Newberry CSD
Subject: Draft environmental impact report for the Daggett Solar Power Facility (State Clearinghouse No. 2018041007)

4/15/2019

RE: Draft environmental impact report for the Daggett Solar Power Facility (State Clearinghouse No. 2018041007)

Tom Nievez, Contract Planner
San Bernardino Land Use Services Department
Tom.Nievez@lus.sbcounty.gov

Jodi Howard, General Manager
Newberry Springs Community Service District
newberrycsd@gmail.com

Greetings,

The community of Newberry Springs is the most affected community of the Daggett Solar Power Facility.
It is however, not significantly regarded in this EIR.
One glaring omission is:
Section 3.14
Effects found not to be significant
Population and Housing
Fire Protection

32-1 It says, "Fire protection services for the project area are provided by the Daggett Fire Department. The department's fire station is approximately 1.5 miles to the west of the project site at 33702 Second Street in Daggett. Additionally, the Barstow Fire Protection District station is approximately 12 miles west of the project site at 861 Barstow Road in Barstow and would be available to back up the Daggett Fire Department if necessary." By ignoring Newberry Springs, this assessment is incomplete, therefore false and should be corrected, for the following reason.

Phase 3 of this project is in the community of Newberry Springs and served by the Newberry Springs Volunteer Fire Dept., not the Daggett Fire Dept. The Newberry Springs Volunteer Fire Dept. is approximately 6 miles east of Mineola road and Silver Valley Rd.

This brings up a significant question. If the Public Safety Services Impact Fees are paid as if in the Daggett CSD area, excluding Newberry Springs, what is he process to assure the Newberry Springs CSD receives its fair share?

Thank you for your response.

Paul Deel

760-257-3606

32 PAUL DEEL

32-1

Comment Summary:

This comment cites text from the EIR that states fire services would be provided by the Daggett Fire Department. The commenter states that the EIR is incorrect because Phase 3 of the project is located in Newbery Springs and served by the Newberry Springs Fire Department. The commenter asks whether the Newberry Springs CSD would receive public services impact fees.

Response:

Refer to Response 6-3 regarding potential impacts to the Newberry Springs Fire Department and public service impact fees.

Nievez, Tom

From: Paul Deel <deelplum1@gmail.com>
Sent: Wednesday, April 17, 2019 10:17 PM
To: Nievez, Tom
Subject: Draft Environmental Impact report for he Daggett Solar PowerFacility sc No. 2018041007, section 4.0

April 16, 2019

Tom Nievez, Contract Planner
San Bernardino Land Use Services Department
Tom.Nievez@lus.sbcounty.gov

RE: Draft environmental impact report for the Daggett Solar Power Facility (State Clearinghouse No. 2018041007) Section 4.0 Alternatives to the Proposed Project

Greetings,

33-1 The core strength of solar power is being ignored in this search for alternatives to the proposed project. Distributed solar power facilities on rooftops and other urban areas of opportunity are not even discussed. The impact that the new

33-2 California Energy Efficiency Building Standards will have on the need for utility solar power is not considered and should be. [1]The new building standards set by the California Energy Commission (CEC), take effect on Jan. 1, 2020 and are

33-3 predicted to add 200 MW's of distributed PV in California per year.

33-4 Renewable solar energy is not like coal, oil or gas. It is sunshine. New every day in similar amounts whether we use it or not. Not concentrated in hard to reach sensitive areas but everywhere. The strength of this new energy revolution is that solar power can be harvested where it is used. The model of transporting oil, gas, coal and even hydro power from its source site to its use site is an antiquated model not appropriate to the new solar renewable energy industry.

33-5 Additionally, the high costs related to transmission lines take away the efficiency of solar energy. It is like eating a tomato from your own garden or buying one that has been transported 1500 miles. You end up paying more for transporting the product than the product itself.

33-6 Without individually listing each of the many letters you have received that bring to the discussion the damage to environment, neighborhoods, communities, health and etc.; I am referencing them to point out that none of these negatives come with distributed solar power systems.

33-7 The question of alternatives should not only be where to put a utility solar power facility, but whether the need for it is greater than its environmental and societal cost.

Sincerely,

Paul Deel
Deelplum1@gmail.com
PO Box 328
Newberry Springs, CA 92365

[1] Renewable Energy World, California Says New Residential Buildings Must Have Solar, May 10, 2018 By Jennifer Delony Associate Editor

33 PAUL DEEL

33-1

Comment Summary:

This comment raises a concern that roof-mounted and distributed solar power is not considered as a project alternative and suggests that the list of alternatives is incomplete or insufficient.

Response:

As stated in Section 4.0, Alternatives to the Proposed Project, Alternatives Considered but Rejected of the EIR, distributed generation is considered but rejected in the EIR because in order for distributed solar to be a viable alternative to the project, the applicant would need to own or control a sufficient amount of distribution-level connected sites to accommodate 650 MW of capacity. Therefore, the alternative was rejected.

As further indicated in Section 4.0, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project.

33-2

Comment Summary:

This comment states that new California Building Standards will affect the need for utility scale solar power, and the new building standards should be considered in the EIR.

Response:

Comment noted for the record. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues. The new California Building Standards require new residential buildings to include solar panels. There is no evidence that the requirement for solar panels would reduce the need for utility scale solar power. Furthermore, both residential and utility scale solar power can be integrated into the state's energy mix together to reduce reliance on greenhouse-gas emitting energy sources.

33-3

Comment Summary:

This comment states that new California Building Standards will take effect in 2020 and are predicted to add 200 MWs of solar power in the state per year.

Response:

Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues

33-4

Comment Summary:

This comment states that solar power is different than other sources of energy because it is generally available in most places, and can be generated at the same place as it is used. The comment argues that energy production at a central facility and transportation to the place of use is not appropriate for solar energy.

Response:

Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues. Refer to Response 33-1.

33-5

Comment Summary:

This comment states that the costs related to transmission of solar energy reduce its efficiency.

Response:

Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues.

33-6

Comment Summary:

This comment states that the environmental impacts created by the project would not be created by distributed solar power systems.

Response:

Please refer to Response 33-1 regarding project alternatives. Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues.

33-7

Comment Summary:

This comment suggests that a no-project alternative would have a lower environmental and social cost.

Response:

Please refer to Response 33.1 regarding project alternatives. Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues.

April 27, 2019

Paul Deel
PO Box 328, Newberry Springs, CA 92365-0328
Deelplum1@gmail.com
760-257-3606

RE: Draft environmental impact report for the Daggett Solar Power Facility (State Clearinghouse No. 2018041007) Groundwater Supplies Impact 3.9 and Other CEQA Considerations; Significant and Unavoidable Impacts

Tom Nievez, Contract Planner
San Bernardino Land Use Services Department
Tom.Nievez@lus.sbcounty.gov

Mr. Nievez,

34-1 I'm referencing Section 5.0 Other CEQA Considerations, beginning paragraph 4, page 5-4, impacts to groundwater supplies; because it concludes very briefly the argument in Section 3.9 concerning the potential water rights transfer from the west to the east side of the Calico-Newberry fault.

It says." Furthermore, impacts to groundwater supplies are considered significant and unavoidable given unknown future water pumping scenarios involving potential water rights transfer from the west to east side of the Calico-Newberry fault,..."
The key seems to be the argument that it cannot be known what the holders of those free pumping allowances will do with those assets.

34-2 1. As an active involved resident in Newberry Springs for the last 39+ years I wish to be considered a creditable witness to the 'intent' of 2 of those holding pumping rights.
One boasted years ago when he was acquiring properties and pumping rights that he would pump Newberry dry and laugh all the way to the bank. The second recently said that finally he could get out of the alfalfa business and retire on his pumping rights. I cannot prove those statements but they should be enough to offset the equally unsure claim that their actions cannot be known.

34-3 2. A second argument in favor of 'intent' to monetize their free pumping allowance assets are the significant loss of revenue should they choose not to use them.
If the estimated 7,657 acre feet of pumping rights were sold at $250.00 each, they would stand to earn $1,914,250.00
If the estimated 7,657 acre feet of pumping rights were rented for 1 year at $25.00 per acre feet, they would stand to earn $191,425.00 per year.
If the ramped down 7,657 acre feet of pumping rights are discounted to the 35% ramp down allowance, they would still earn $66,998.00 per year.

34-4 The threat to the populated east side water cannot be dismissed by claiming to not know what the holders of the free pumping allowance (FPA) will do; when the only responsible approach is by acknowledging that the most reasonable and probable 'intent' of those holding these assets is to monetize them if able.

34-5 There seems to me to be three mitigation avenues.
1. Deny the project
2. Require Clearway Energy Group, the applicant, to purchase equal amounts of FPA (7,657 ac ft.) from within the Baja Sub Area and retire them to the Mojave Water Agency or place them in a trust held by the Community Service Districts of Daggett and Newberry Springs as a community benefit.
3. and/or, San Bernardino County and Land Use Services can reinstitute the San Bernardino County Water Conservation Ordinance they incorrectly dismissed[1] when the adjudication began. This, at least, would confine water transfers to existing uses and prohibit opening new or fallow fields, lakes or ponds.

Thank you for your consideration of our dilemma.

Paul Deel

34-6 1. From Mojave Water Agency - Minutes- Planning and Resources Committee Workshop, March 13, 2000, page 5 Item 7 " MWA staff suggests that we provide comment to the County that they wait until we have word on these matters before they eliminate the ordinance."

34 PAUL DEEL

34-1

Comment Summary:

This comment cites text from Section 5.0, Other CEQA Considerations, of the EIR regarding water rights transfer and states that it is unknown what the holders of the FPA would do with those assets.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Comments to Letter 3 (Watermaster letter).

34-2

Comment Summary:

The comment states that the commenter has heard first-hand what the owners of the FPA would do if they retained their water rights.

Response:

This comment is hearsay and does not challenge the adequacy of the EIR. Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Responses to Comments to Letter 3 (Watermaster letter) and Master Response 5 regarding water rights and potential impacts to the groundwater basin.

34-3

Comment Summary:

This comment discusses the loss of revenue if the owners of the water rights choose not to use them.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and

15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

34-4

Comment Summary:

This comment states that the "most reasonable and probable intent of those holding these rights is to monetize them if able."

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Comments to Letter 3 (Watermaster letter). All analyses in the EIR are supported by factual substantiation. No further response is required.

34-5

Comment Summary:

This comment states that there are three mitigation avenues: deny the project; require the applicant to purchase equal amounts of FPA and retire them; and/or have San Bernardino County reinstate the San Bernardino County Water Conservation Ordinance.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2 of the EIR. As stated, implementation of the project would eliminate approximately 1,600 acres of on-site agricultural use which required water production of approximately 8,338 AF in 2017. In contrast, the project is estimated to require approximately 450 AFY for approximately 3.5 years for a total of 1,800 acres (during construction) and reduce water use to 25 AFY (during project operation). This would result in a reduction of need for production at the project site of more than 164,000 AF over 20 years. Regardless, impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Comments to Letter 3 (Watermaster letter). All analyses in the EIR are supported by factual substantiation. No further response is required.

Nievez, Tom

From:	Paul Deel <deelplum1@gmail.com>
Sent:	Monday, April 29, 2019 12:04 AM
To:	Nievez, Tom
Subject:	Draft EIR Daggett Solar Power facility
Attachments:	Draft EIR heat island effect.docx; Utility Scale Solar placed in deserts may increase global warming.docx

35-1 Greetings Mr. Nievez,
Attached are two reports.
One is a current assessment of the heat island effect of large solar fields and a mitigation recommendation. and two is a presentation I made at the EIR scopping meeting in Daggett about the heat island effect.

Thank you
Paul Deel

April 27, 2019

Paul Deel
PO Box 328, Newberry Springs, CA 92365-0328
Deelplum1@gmail.com
760-257-3606

RE: Draft environmental impact report for the Daggett Solar Power Facility (State Clearinghouse No. 2018041007) Heat Island effect

Tom Nievez, Contract Planner
San Bernardino Land Use Services Department
Tom.Nievez@lus.sbcounty.gov

Mr. Nievez,

35-2 During the EIR scoping meeting in Daggett I brought forward my concerns regarding the heat island effect of a utility scale solar power facility on the climate around the solar power facility. See attachment 'Utility Scale Solar placed in deserts may increase global warming'.

I have not noticed this addressed in the Draft EIR.

35-3 My concerns were sparked by a study [1]"Water for the Recovery of the Climate – A New Water Paradigm" on the rain pattern alterations caused by heat islands. I conclude that rising warm air coming off the solar arrays would prevent rain events from coming into the Mojave valley thus causing an increase of drought and desertification.

35-4 Recently I have been made aware of another study of heat islands as it relates to actual solar fields. This study is titled: [2]"The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures"

This work studied and compared two solar fields, one in an urban environment (UHI), and the other in a desert environment (PVHI). They report, "The PVHI effect caused ambient temperature to regularly approach or be in excess of 4 °C warmer than the natural desert in the evenings, essentially doubling the temperature increase due to UHI measured here."

A 110^0F summer afternoon now becomes 117^0F (1.8^0F = 1.0^0C).

A 100^0F evening now becomes 107^0F.

35-5 The residents in the Minneola Neighborhood are next door and downwind of this heat island machine and will have to suffer its warming affects. Such affects will be higher electric bills for air conditioning or if they are unable to afford air conditioning and rely on evaporative cooling, their homes could be uninhabitable. I have serviced both air conditioning and evaporative

35-5 *Cont'd*

systems here as a warm air heating and air conditioning contractor for 35 years. During our hot humid 'monsoon' season an evaporative cooler must be in unusually good condition to lower air temperature by 20^{0}F. Therefore, a 100^{0}F outside air temperature comes into the house at 80^{0}F; 110^{0}F at 90^{0}F and 117^{0}F at 97^{0}F. These higher temperatures combine with radiant heat additives that create an environment potentially unsafe for occupants.

Who will want to buy in that area? What will become of property values? How will the residents be compensated for their discomfort and loss?

This report proves that heat island affects from large solar fields is real, significant and cannot be avoided or ignored.

35-6

A possible mitigation may be ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE, exhibit 4-1. Reduced size further from residential neighborhoods could possibly mitigate some of the effects.

Thank you,

Paul Deel

35-7

Reference:

1. "Water for the Recovery of the Climate – A New Water Paradigm"
Authors: M. Kravcik, J. Pokorny, J. Kohutiar, M. Kovac, and E. Toth
http://www.waterparadigm.org/download/Water_for_the_Recovery_of_the_Climate_A_New_Water_Paradigm.pdf
Year of publication 2007

2. The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures
- Greg A. Barron-Gafford, Rebecca L. Minor , Nathan A. Allen , Alex D. Cronin , Adria E. Brooks & Mitchell A. Pavao-Zuckerman

Scientific Reports volume 6, Article number: 35070 (2016) | Download Citation
https://doi.org/10.1038/srep35070

35-8

Water for the Recovery of the Climate - A New Water Paradigm



M. Kravčík, J. Pokorný, J. Kohutiar,
M. Kováč, E. Tóth

1

Authors:

Ing. Michal Kravčík, CSc., (1956) completed his studies in Waterworks Construction and Water Management at the Slovak Technical University and worked for the Institute of Hydrology and Hydraulics and the Institute of Ecology of the Slovak Academy of Sciences. He is the founder of the People and Water NGO, a holder of the Goldman Environmental Prize and a member of ASHOKA: Innovators for the Public, an international network of innovators who work for public welfare. He is the most prominent representative of the People and Water NGO, which has been awarded the EU-USA Prize for Democracy and Civil Society Development.

RNDr. Jan Pokorný, CSc., (1946) completed his studies at the Natural Sciences Faculty at Charles University in Prague. He is the director general of the beneficial society ENKI, a scientific staffer at the Institute for Systems Biology and Ecology of the Academy of Sciences of the Czech Republic, the co-author of a number of patents, a university lecturer, a member of the international scientific panel of the Natural Resources Commission for the Australian government and a member of the scientific technology panel of the Ramsar Convention on Wetlands for Central and Eastern Europe.

35-8
Cont'd

Ing. Juraj Kohutiar (1961), completed his studies in Waterworks Construction and Water Management at the Slovak Technical University, worked at the Institute of Hydrology and Hydraulics of the Slovak Academy of Sciences and at present cooperates as a consultant with the People and Water NGO.

Ing. Martin Kováč (1972)**,** completed his studies in Waterworks Construction and Water Management at the Slovak Technical University, worked in the area of protection of the national cultural heritage, was the co-founder and the first director of the National Trust in Slovakia, is a member of international network ASHOKA. At present he works as specialist for anti-flood prevention at the Association of Cities and Municipalities of Slovakia.

RNDr. Eugen Tóth (1964), completed studies at the Mathematics-Physics Faculty of Comenius University. He works in the field of information systems with a focus on geographic information systems (GIS) and agricultural land. He cooperates with the NGO People and Water as a project manager.

Authors:
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35-8
Cont'd

This publication originated through partner cooperation between the People and Water NGO, the Association of Towns and Municipalities of Slovakia, the community help society ENKI and the Foundation for the Support of Civic Activities. Its completion would have been much more difficult without the support of colleagues and friends from People and Water.

CONTENTS

CONTENTS 4
1 THE REASON FOR THE FORMULATION AND THE MISSION OF THE NEW WATER PARADIGM 5
2 WATER AND ITS CIRCULATION IN NATURE 11
2.1 The four "environments" of water 11
2.2 Water and thermal energy 14
2.3. The large water cycle 16
2.4 The small water cycle 17
2.5 The balance of the water cycle 18
3 THE ROLE OF PLANTS IN THE CIRCULATION OF WATER AND IN THE TRANSFORMATION OF SOLAR ENERGY 23
3.1 The flow and distribution of solar energy on land 23
3.2 Flora, water and the distribution of heat 25
3.3 The impact of drainage and the removal of vegetation on the release of heat 28
4 THE IMPACT OF THE EXPLOITATION OF LAND ON THE CIRCULATION OF WATER 34
4.1 Forests 34
4.2 Agricultural land 37
4.3 Bodies of water 41
4.4 Towns 42
5 THE CONSEQUENCES OF A DECREASE IN THE WATER OF THE SMALL WATER CYCLE 49
5.1 The impact of the decrease in the water of the small water cycle on the growth of climate extremes 49
5.2 The impact of the decrease in the water of the small water cycle on rising ocean levels 52
5.3 The impact of the decrease in the water of the small water cycle on the rise in global tension 54
6 THE OLD AND THE NEW WATER PARADIGM 63
6.1 The old water paradigm 63
6.2 The new water paradigm 67
7 INSTITUTIONAL SUPPORT FOR THE USE OF RAINWATER 76
7.1 The conservation of rainwater in our history 76
7.2 The principles, methods and advantages of conserving rainwater on land 79
7.3 The civil sector 80
7.4 The economic sector 82
7.5 Public sector institutions 84
7.6 Financial costs and the assessment of scenarios 86
8 CLOSING SUMMARY 92

35-8
Cont'd

1 THE REASON FOR THE FORMULATION AND THE MISSION OF THE NEW WATER PARADIGM

Things should be made as simple as possible, but not any simpler.

Albert Einstein

What is a "paradigm"?

By the expression "paradigm" we understand a set of suppositions, concepts and attitudes of a group of scientists in regards to a particular scientific problem. The term in this spirit is associated particularly with the name of Thomas Kuhn (1922-1996), a professor of the philosophy and history of science. Professor Kuhn dates the beginnings of his theory of scientific revolution to the time when he was preparing his doctoral dissertation. At that time he read Aristotle's *Physics*, which was, until the time of Isaac Newton, the most authoritative work in the field. Kuhn was shocked by Aristotle's dissimilarity to Newton and by his seemingly incorrect, even incomprehensible logic. However, when he was able to adopt a different method of looking at Aristotle and some of his basic concepts, the book suddenly began to make real sense to him.[1]

35-8
Cont'd

Thinking in conventional ways

Kuhn observed with surprise that the term "motion," unlike that of Newton's (and his own) understanding, means in Aristotle's physics not only a change in the position of the object being investigated, but also other changes, such as growth, a change in temperature, healing processes and the like.[2] Just as Kuhn needed to free his mind of conventional ideas in order to understand Aristotle, an understanding of the work presented here may also require a certain distancing from some current popular theories and ways of perception. When, for example, this work speaks about water, so long as it is not specified otherwise, it means not only the water in rivers and in lakes which we can see, but also water in all of its states, forms and occurrences. Water vapor and clouds in the atmosphere are more than only poetic reflections of water in the ground and in open reservoirs. Water in living organisms, particularly in plants, is likewise the subject of our attention.

The possibility of challenging a paradigm

Along with his many works of philosophy and various scientific disciplines, Aristotle also wrote the work *Meteorologica*. Unlike today's narrow understanding of this scientific field as being one concerned with atmospheric phenomena, Aristotle covers in reference to this topic a broad spectrum of knowledge and concepts about the Earth. *Meteorologica* is not one of the best works of this brilliant philosopher, but Aristotle's authority from ancient times up to the beginning of the modern age was so great, thanks to his brilliant philosophical work, that hardly anyone dared to challenge him in other

[1] Thomas Kuhn, "What Are Scientific Revolutions?" from *The Probablistic Revolution, Volume I: Ideas in History*, eds. Lorenz Kruger, Lorraine, J. Daston, and Michael Heidelberger (Cambridge, MA: MIT Press, 1987), http://www.units.muohio.edu/technologyandhumanities/kuhn.htm
[2] ibid.

fields of knowledge either. The expansion in exploration and new geographical discoveries in the 16th century gradually showed the obvious fallacy of many concepts and statements included in *Meteorologica*. Aristotle's *Meteorologica* in this case can serve as an example of a paradigm which ceased to remain valid and which needed to be replaced with a new one which would present a better picture of reality.

The mystique of water

The theme of this publication is a paradigm about water, that is, a sum of suppositions, concepts and attitudes of different groups in society (not only scientists) about water. Water is a natural subject for a paradigm, even though it doesn't have to be articulated in scientific formulas. Poets have sung of the mysticism of water; philosophers writing at the time of the birth of philosophy in ancient Greece considered water to be one of the foundations of the world. The ocean was, according to Homer, "the father of all gods."[3] Thales of Miletus considered it to be the elemental matter of the world.[4] According to Empedocles and others, water was one of the fundamental elements of the world, along with earth, fire and air. Water as the basis of life and as a purifying medium has been richly represented in the symbols of the world's religions. In the Bible, the original paradise is described as the Garden of Eden, supplied with water from four rivers (the Euphrates and Tigris among them). A person formally becomes a Christian through baptism with water. Hindus, in their desire for liberation, plunge into the Ganges River, and the promised paradise to believers in the Koran also teems with the water of rivers. In the spiritual perceptions of humanity, harmony with water and with its natural circulation is felt as a gift, a goodness or a blessing, and disharmony with it and the extremes of its circulation are considered as a punishment, an evil or a curse.

35-8
Cont'd

The rise and fall of civilizations

Water is first and foremost a basic element of life. Life, according to present theories, originated in water, expanded to land and without water would cease to exist. Water is also an indispensable component in the history of human civilizations. The greatest human civilizations emerged directly around sources of water: the Nile in Egypt, the Euphrates and Tigris in Mesopotamia, the Yellow River in China. Their prosperity depended greatly on their having an abundance of water. Water helped fulfill both the lower and the higher needs of people, provided them with sustenance, protection, energy, transportation, rest, beauty, harmony and inspiration. From history we know of civilizations which successfully developed around fertile land with rich vegetation and an abundance of water. It is possible that many of them, however, brought about their own decline or extinction through the degradation of their sources of water. Today we have become used to seeing archaeologists digging up evidence of ancient, once thriving civilizations in the desert or in the semiarid lands of Northern Africa, the Middle East, Iraq, Iran or in other parts of the world. But it doesn't occur to us that these civilizations possibly died out in a process which is still going on around us today.

[3] Homer, *Iliad*, XIV, 201
[4] Diogenes Laertius: "Thales... designated water as the principle of everything."

The need for a new paradigm

The relationship of civilizations to water has changed over the course of history. In some civilizations water was worshipped. In the 20th century people attempted to confine and subjugate water. Progress in the spirit of the communist slogan: "we command the wind and the rain" was, from the viewpoint of immediate solutions, more effective, but from the viewpoint of sustainability even worse than the worshipping of water. Water cannot be commanded; a more sensitive approach is required. The need for formulating a paradigm is a consequence of the failure of traditional ideas (in this publication, we refer to them as the "old paradigm") to offer lasting, sustainable solutions to some of the burning questions of water resources and water circulation. The paradigm formed slowly in the environment of a civic association concerned with the scientific and practical aspects of these questions. The first reports were published in the early 1990s.[5] Its origin was accompanied by a gradual examination of the knowledge acquired through long years of practice and by the broadening of our knowledge base. Its publication is an expression of the concern and care of a group of citizens interested in public affairs. It is assembled with the objective of reassessing the present unsatisfactory approach to water and the water cycle.

A different angle of view

This work is not founded on new, revolutionary knowledge; its newness arises more from thinking through existing knowledge to its logical consequences. Despite this fact, we are convinced that it is a pioneering work, that it fundamentally changes water-management practice and may be a great inspiration for further research and for the scientific community. Scientific research programs and materials have engaged with climatic changes for many years now around the world, and they have extended over a rather large range. They reduce the whole process of these changes, however, almost exclusively to the question of so-called greenhouse gases. Many scientists themselves, in numerous works, state that the connection of the hydrosphere or changes in the water (hydrological) cycles with climate changes is great but has so far been insufficiently studied.[6] While attention thus far has focused on the impact of climate changes on the water cycle,[7] the altered paradigm recommends concentrating attention on the impact of changes in the water cycle on climate changes. If the alternative view presented in this publication is correct, it opens the possibility of a constructive solution to many of the problems associated with climatic changes. The plan for saturating the small water cycle through the conservation of rainwater on land is, from the point of view of the authors of this publication, a revolutionary solution to the given problems.

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[5] For example, *The Principles of Water Management Policies and Proposed Measures – An Alternative Proposal, Water for the Third Millennia*, Slovak River Network, Košice, 1993

[6] For example, Prof. RNDr. Milan Lapin, CSc., "A Brief Theory about the Climatic System of the Earth," particularly in connection with changes in the climate; modification of the professor's inauguration speech from 20 September 2004, Internet

[7] For example, European Commission, *Climate Change Impacts on the Water Cycle, Resources and Quality*; Brussels, 25 – 26 September 2006, Conference Proceedings, Scientific and Policy Report, EUR 22422

Content of the chapters

In addition to this introduction and the concluding chapter, which summarizes the message of the publication and the new paradigm, the work is divided into a number of additional chapters. Chapter Two briefly introduces us to the four "environments" of water and to the mechanisms of the large and small water cycles and the balance of energy in them. It briefly mentions the water balance and also points out the great significance of seemingly minute changes to it. Since water and vegetation play a decisive role in the transformation of solar energy falling on the earth's surface and is clearly involved in the water cycle of a country, Chapter Three deals with these important relations—it describes the flow of solar energy between the Sun and the Earth, the distribution of solar energy on land, the ability of the biomass to transform solar radiation into other forms of energy, as well as the importance of evaporation from the ground and from plants for the distribution of heat in ecosystems and the consequences of drainage and removal of vegetation in freeing up heat on land. Chapter Four clarifies the history and impact of the exploitation of land on changes to the runoff rates of water from land and also implies an association with some negative phenomena, not the least of which is soil erosion. Chapter Five addresses changes to the temporal and spatial breakdown of precipitation activities through the influence of human beings and the impacts of these changes not only on local and global climates but particularly on the rise in extreme weather events. We dissect in this chapter the reason for rising ocean levels from an angle and with an emphasis that are different from those which the reader is commonly used to seeing. We also fleetingly touch on the unhappy expectations of world society regarding further development of the mentioned changes and their impacts on the growth of global tension and the destabilization of life on Earth. The essence of this publication is then found in Chapter Six, which, after a brief recapitulation of present attitudes towards questions of water management and their impacts, summarizes the new attitude towards water in the new water paradigm. In addition to proposing a new "culture" in our attitude towards water, it proposes a method of mitigating or redressing the greatest damage caused by current water management practices on land. Chapter Seven opens with a short historical look at some aspects of land and water management in our geographic space. It contains an outline of practical measures for the harvesting of rainwater on land, a description of possible, or proposed processes which will emerge from acceptance of the new water paradigm for public sector institutions as well as for the civil and commercial sectors. Last but not least, this chapter offers a picture of the financial costs and effectiveness of the proposed new processes and measures in comparison with current approaches.

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Ideas have consequences

Mistakes that people make with strategic decisions or at the beginning of a great work can have long-term and far-reaching negative consequences. A distorted view on a problem can often lead to counterproductive measures. That's why knowledge of the correct paradigms is important in many fields of public policy. This knowledge is no small matter, and people often reach it using a method of trial and error which can sometimes be very expensive. We are witnesses to the fact that the problems of water and its circulation are solved on all levels: the international, the national, the regional, the local, the communal and the individual. The offered paradigm for water is relevant to each of these levels because it puts them in

a continuum and in each, water in all its forms and expressions is a question of prosperity and decline, even of life and death.

The role of the state

As far as the management of water on the state level is concerned, the key processes are creating strategic policy decisions, defining legislative instruments and determining the different authorities and responsibilities of state administration and local government, as well as a system of using financial resources for the protection, creation and utilization of water resources. The state at present supervises and looks after the realization of all the mentioned matters as well as other affairs. If, however, its attention and measures are not aimed at achieving a permanently sustainable water balance on the territory of the state, including water balances on the territory of regions, towns and communities, the state, in the sense of this new paradigm, is acting irresponsibly towards the property and health of its own citizens, even towards the international society of nation states.

The role of local government

Local governments are responsible for the development of their own communities. The care for water on the level of local administration is a key to the happiness of citizens and the health and safety of the environment. Towns and municipalities need to resolve effectively and as soon as possible the protection of their land from flooding, drought and fire, and at the same time secure an abundance of quality water for maintaining development of the community. The development of municipalities is thus dependent on a sufficiency of water and a stable water regime which does not threaten the well-being of the community. The development of municipalities must also be built on the principle of water tolerance, i.e. carrying out on the local level management of water resources which does not contribute to the increased threat of neighboring communities. Recognition of the possible impacts of the local influences of humanity on wider connections, even on global changes in the water cycle, creates a foundation for successful, professionally and effectively manageable solutions on the local level according to the well-known principle of "think globally, act locally!". Sustainable solutions on the local level contribute to stability on the regional, continental and global level. The submitted paradigm offers sufficient inspiration for both global thinking and local action.

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Doing business with water

Some business entities are engaged in trading with water and satisfying the economic, social and environmental needs of society. If they use water from natural sources and do not return it to the water cycle, however, they cause a deficiency of water and grave negative changes in this cycle. They often, in the end, do harm both to their customers and themselves. This new paradigm for water therefore opens up space for businesses to strengthen their own interest in the conservation and renewal of water in the water cycle.

Possibilities for individuals

At present, the individual is placed in the position of consumer of water and for the most part is neither aware of his own share of responsibility for the protection of water nor of the possibilities or threats which water (or the lack of it) may bring. And yet each roof and each yard of a family home is a microwatershed on which the annual sum of precipitation represents a

surprisingly large volume of water. Water is an asset which the individual citizen can use to improve his own life in a variety of ways. He can also, however, without any profit and for a fee, flush it into rivers and into the sea and thus slowly contribute to the desertification of his own environment and microclimate and, in time, to macroclimatic changes. The new water paradigm makes this choice a conscious one.

The common good

The publication of the paradigm is, in the opinion of its authors, a step towards a responsible approach and greater critical thinking with no intention of offending anyone associated with the "old paradigm" or hurting anyone associated with the changes that could result from the change in paradigm. The new paradigm should be accepted in the spirit that it is offered. The authors provide an independent view on the global scenario of the circulation of water with its effects on a continental, national, regional or town level, so that this knowledge will contribute to the common good. The acceptance of the paradigm, besides other suggested activities, ultimately means the acceptance of a new higher culture in relation to water and thus also a total overhaul of the cultural character of our civilization. In the end result, it's about much more than just water.

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2 WATER AND ITS CIRCULATION IN NATURE

Now the sun, moving as it does, sets up processes of change and becoming and decay, and by its agency the finest and sweetest water is every day carried up and is dissolved into vapour and rises to the upper region, where it is condensed again by the cold and so returns to the earth.

Aristotle, *Meteorologica*

Thales of Miletus considered water to be the prime matter of the world. Empedocles and some other ancients, but also later Medieval and Renaissance thinkers, considered it a prime matter of the world along with earth, fire and air. In this chapter we "set the stage" for water, and we sketch out a mechanism for its interaction with the other mentioned "basic elements" during its circulation in nature.

2.1 The four "environments" of water

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The environments of water

There are around 1400 million cubic kilometers of water on Earth. When we speak about water in this document, we have in mind water in four "environments": water in the seas and oceans, water on land, water in the atmosphere and water in living organisms *(tab. 1)*. At the same time we have in mind water in all of its states: gaseous, liquid and solid.

Water in the oceans

Water of the "first environment," that is, in the seas and oceans, covers 70.8% of the surface of the Earth and forms the largest part, up to 97.25%, of the volume of all water on Earth. The seas and oceans have a key global thermoregulational function for our planet. Their temperature in the course of a year changes only minimally. If they were not here, however, fluctuations of extreme temperatures (such as occur, for example, on the moon) would afflict our planet, which would then be unable to sustain life on Earth as we know it. And only slightly larger fluctuations of temperature, in comparison with the present, could have fatal consequences on the food security of our planet. Among other functions of the seas and oceans, the supply of precipitation to land will be of especial interest to us in this publication.

Water on land

Our image of water in the "second environment" of land is often distorted and fixed only on water in rivers, or perhaps in natural and artificial reservoirs. Water in its solid state (glaciers, snow), however, forms 2.05% of the volume of all water on Earth and contains up to 70% of the world's reserves of fresh water (*tab. 2*). Alongside this water, visible surface water in rivers forms only 0.0001% and in lakes (inclusive of salt lakes and inland seas) 0.01% of the volume of all water on Earth. Groundwater and soil moisture represent, alongside the oddly

placed glaciers, the largest wealth of water on land (0.685%), exceeding the volume of water in all rivers and lakes of the world many times over. Water in the soil is, in terms of amount and usefulness, more important than water in rivers. This undiscovered and misunderstood treasure is, however, overlooked and neglected, and as a result, decimated. This publication is particularly concerned about its improvement with the help of water from the "third environment."

Water in the atmosphere

The volume of water in the atmosphere (in all three states) is approximately ten times greater than the volume of all the water in all rivers. Theoretically, if all the water in the atmosphere were to suddenly fall in the form of precipitation, it would cover the surface of the earth with an imaginary layer of water 25 mm in depth. Just as the seas and oceans hold the key to the *global* thermoregulatory function for our planet, the water in the atmosphere has a key role to play in *local* thermoregulation.

Water in the biota

Water surrounds us. It is, however, not only around us but inside of us, too. Water in living organisms, that is, in the "fourth environment," forms approximately 0.00004% of the volume of all water on Earth, which is in terms of volume the least of the four environments. But what is missing in volume is greatly made up for by the fundamental importance of this water for every individual form of life. The human body, for example, contains more than 60% water and all physiological processes in it take place in an environment made up primarily of water. The content of water in plants differs according to the species and is often much higher than in animal tissues. The volumes of water accumulated in vegetation are not insignificant, equally the volumes of water accumulated in the soil thanks to the existence of vegetation. Vegetation on land has, besides other functions, a hugely important role particularly in the regulation of evaporation from the ground, thus significantly helping maintain the thermal stability on land upon which its own success, even its existence, is greatly dependent. All higher forms of life on Earth are dependent on the existence and prosperity of vegetation.

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Tab. 1 **The allocation of stocks of water on Earth**[8]

Reservoir	Volume of water (in millions of km^3)	As a percent of the total
Oceans and seas	1370	97.25
Icebergs and glaciers	29	2.05
Groundwater	9.5	0.68
Lakes	0.125	0.01
Soil moisture	0.065	0.005
Atmosphere	0.013	0.001
Rivers	0.0017	0.0001
Biosphere	0.0006	0.00004
Total global reservoir of water	1408.7053	100

Tab. 2 **Area of continents, oceans, deserts and glaciated territory and the number of inhabitants on the continent**[9]

	Area in km^2	glaciated land in km^2	mean height of continents in m above sea level	Area of desert over 20,000 km^2 in km^2	Number of residents in mil. (year 2000)
Continents as a whole	**149 409 000**	**16 081 030**		**13 771 000**	**6 076**
Europe	10 382 000	115 000	290		729
Asia	44 410 000	89 000	960	3 480 000	3 686
Africa	30 329 000	15	650	8 922 000	796
North and Central America*	24 360 000	2 049 000	715	39 000	835
South America	17 843 000	25 000	580	160 000	
Australia and Oceania	8 910 000	1 015	340	1 170 000	30
Antarctica	13 175 000	13 802 000	2 000		
Oceans	**361 455 000**		**Average depth of the oceans in m**		
Pacific	179 680 000		4 028		
Atlantic	94 243 000		3 542		
Indian	76 170 000		3 710		
Arctic Sea	11 362 000		1 228		
Earth in total	**510 864 000**				

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* including Greenland, which despite political and historical associations with Denmark and Europe, geographically belongs to the North American continent. Its glaciated territory totals 1,802,600 km^2
** the glaciated area of the Alps totals 3,600 km^2

[8] Various encyclopedia resources
[9] Source: www.geohive.com and other encyclopedia resources

13

2.2 Water and thermal energy

The absorption or freeing of heat

Water is exceptional in the fact that at temperatures common on Earth it can occur naturally in all three states: solid, liquid and gaseous. Upon its change of state it consumes, or frees, a certain amount of thermal energy. By the change from solid or liquid forms into water vapor it acquires a high mobility, thanks to which relatively large volumes are able to quickly shift in horizontal and vertical directions. Water has at the same time also the largest measured heat capacity (that is, the ability to absorb thermal energy) of all known substances. Thanks to this ability to bind and to release energy, as well as the ability of transfer, reflect or diffuse energy, water in all its states can cool or heat the planet as needed. It maintains it at such temperatures which make life on Earth possible.

The balancing of temperatures

Water balances the thermal extremes between day and night, between the individual seasons and between individual regions while at the same time tempering extremes in the weather. Water vapor is the most widespread greenhouse gas in the atmosphere.[10] Its concentration in the atmosphere is quite variable, but it typically fluctuates between 1-4% (by comparison, the concentration of CO_2 is 0.0383%). The more water there is in the atmosphere, the stronger its moderating effect on temperatures and the fewer the deviations in the weather. The less water there is in the atmosphere, the weaker its moderating effect on temperatures and the more extreme the deviations in the weather. Where water is lacking in the soil and in the atmosphere, extreme thermal conditions usually predominate. Water and water vapor influence in the most significant way the climate on Earth. Despite this fact, its role in the atmosphere is one of the least researched and rarely discussed questions.[11]

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The cooling funtion of rain

Falling solar radiation evaporates water from seas, lakes, rivers, wetlands, soil and plants into the atmosphere. The evaporation of each molecule of water consumes heat and thus cools the Earth's surface. Evaporated water in the atmosphere condenses and forms clouds, fog, water precipitation or ice crystals. Water vapor which rises higher into the atmosphere condenses under the influence of the cold air and thus releases thermal energy. Cooled high in the atmosphere, it returns back to the ground in the form of rain. The repetition of this process represents the acting mechanism for the elimination of surplus thermal energy and resembles an ingenious piece of cooling equipment. It is usually true that roughly half of the Earth's surface is at any given time shadowed by cloud cover. Clouds limit the entry of solar radiation into the atmosphere and onto the surface of the Earth. The limiting of the solar radiation that falls on the surface of the Earth decreases evaporation and thus the further formation of clouds.

[10] See, for example: "The Climatic Effects of Water Vapour," Feature: May 2003, http://physicsweb.org/articles/world/16/5/7/1
[11] See, for example: "Water Vapour Supplies New Climate Clues," August 2002, http://physicsweb.org/articles/news/6/8/7/1#020805

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The thermoregulational function of clouds

Clouds play an important role in the regulation of the Earth's energy balance in regards to solar radiation. They reflect part of the shortwave solar radiation, thus limiting its entry into the atmosphere and to the surface of the Earth and thus protecting the Earth from excessive warming. However, they also capture part of the longwave (thermal) radiation from the Earth which would otherwise escape into space; they thus have a warming effect as well. The cooling or warming effect of clouds depends on their type and their altitude. Low-altitude cumulus clouds cool the Earth while thin, high-altitude cirrus clouds have a warming effect.[12] Research on the thermoregulatory effects of clouds and their equilibrium have been shown to be very promising and very interesting with regard to the present problems of humanity.

Evaporation and vegetation

If solar radiation falls on a surface well stocked with water, the majority of the solar energy is consumed in evaporation, the remainder for sensible heat, heating the ground, reflection, or photosynthesis. If the sun's rays falls on a drained area, most of the solar radiation is converted into sensible heat, while in areas that are sufficiently damp year-round most solar energy is consumed for evaporation. Therefore, water surfaces, soil saturated with water and vegetation all play an important role in the circulation of water on land. Functional vegetation fulfills the function of a valve between the ground and the atmosphere. It protects the ground from overheating, and thus drying out, and optimizes the amount of evaporation through the help of transpiration through the many pores (stomata) on the leaves. Vegetation well stocked with water thus has a significant cooling effect and air-conditioning capability. Vegetation—its amount, type and, last but not least, quality—significantly influences surface runoff in watersheds, too. Through deforestation, through agriculture and through urban activities, the amount of water on land has changed. Humanity is thus unwittingly changing the flows of massive amounts of water and energy (for more details see Chapter 3).

Purifying and transport characteristics

Heat (and gravitation) is the motor of the global water cycle, which consists of the large and small water cycles *(Fig. 1).* Water in the water cycle is the blood and lymph of life, which, under the influence of solar energy and gravitation, flows, circulates and vibrates in all its forms between the seas, the land and the atmosphere. When passing through the atmosphere, it absorbs carbon dioxide and ammonia as well as other gases and impurities. Similarly, it is also enriched by various minerals when flowing across the Earth's surface or during infiltration through the soil and subsoil. Through all of these movements, water drives, cleans and thermoregulates ecosystems, but it also erodes the soil. The amount of mineral substances which water carries away to the seas and oceans each year is estimated at 3.5 billion tons. The displacement of soil and soil nutrients is one of the reasons why the runoff of rainwater from land needs to be slowed and why rivers should carry to the seas only those surpluses of water which do not "fit" into the optimally saturated land and atmosphere.

[12] NASA DAAC Study: *Clouds in the Balance*, 2001, http://nasadaacs.eos.nasa.gov/

2.3. The large water cycle

Evaporation from oceans and precipitation

The large water cycle is the exchange of water between ocean and land. Approximately 550 thousand km^3 of water evaporate each year into the atmosphere. About 86% of the evaporation from the Earth's surface is from the seas and oceans while about 14% is from land. Of the total amount of atmospheric precipitation originating from this evaporation, 74% falls over the seas and oceans and 26% over land. From the above, it follows that the seas and oceans, through evaporation and precipitation, endow land with a certain volume of water which travels by way of atmospheric thermodynamic flows a great distance over the continents, where it then rains down (or falls in the form of snow).

The balance of the large water cycle

Part of the water from precipitation is absorbed into the ground and, if it reaches the groundwater table, is added to groundwater runoff (except for regions without groundwater runoff). Part of the water is used by vegetation and part of it evaporates again. The remainder flows away via surface runoff into the network of rivers and back to the seas and oceans. Thus the large water cycle is completed. Under balanced conditions, the same volume of water flows from the continents into the seas and oceans as fall on the continents from the world's oceans in the form of precipitation. But even relatively small deviations from this state of equilibrium can mean great problems on the continents, particularly if they are longer term deviations and if they affect most river basins. If more water flows from the continents into the oceans than is transferred from ocean to land through precipitation, the land loses water and dries out. This occurs, for example, when humanity systematically lowers the infiltration of rainwater into the soil through its activities (for example deforestation, agricultural activities, urbanization) and channels this water (in the quickest possible way) into rivers and subsequently into the sea. The moisture of the soil decreases, the groundwater table falls, vegetation withers and less evaporation takes place. If the volume of water flowing from continents to the seas and oceans increases and evaporation of water from the seas and oceans remains unchanged, or does not increase adequately (under the influence of increased evaporation due to global warming), then the increased flow of water from the continents (including the increased melting of glaciers) adds to the rise in ocean levels.

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Human and other influences

Besides the changes in the global water balance which are caused by phenomena beyond the influence of mankind (solar cycles, changes in position of the Earth in relation to the Sun, volcanic activity...), man unconsciously causes further deviations, thus contributing through his activities to the desertification of the continents. Through conscious activity in the opposite direction, however—namely the deliberate conservation of water on the continents—mankind could stop this ongoing desertification and return the lost water to the continents.

2.4 The small water cycle

Definition and characteristics

The small water cycle is a closed circulation of water in which water evaporated on land falls in the form of precipitation over this same terrestrial environment. Just as a small water cycle exists over land, there is also a small water cycle over the seas and oceans. Mutual interactions take place between the individual small water cycles because these occur in space and time over large areas with different morphologies and surfaces with varying levels of moisture and surface water. The circulation of water in the small water cycle, then, is partially horizontal, but unlike that of the large water cycle, vertical movement is the most characteristic. Evaporation from adjacent areas with different temperatures mutually concur in the creation and development of cloud cover. Perhaps it can also be said that above land water circulates at the same time in many small water cycles which are subsidized with water from the large water cycle.

Evaporation from land and rainfall

The name of the small water cycle is not to its advantage because it gives the impression that the cycle contains only a small amount of water. The opposite is true. Let's look at the information in the previous chapter from a slightly different angle. The average annual precipitation over land is 720 mm and the input from the seas is about 310 mm. From this information it follows that land provides the larger part of its own precipitation (410 mm) from its own land-based evaporation. The precipitation in a region shares in the saturation of soil with rainwater, and through the small water cycle, roughly one-half to two-thirds of rainwater (50 to 65%) goes into the repeated creation of precipitation over land. This is very important information which should fundamentally change our current approach to the management of water in river basins. Mankind cannot transform and drain the land limitlessly without also having an impact on its precipitation and its thermal regime. If we want to have stabile precipitation over the land, it is very important to ensure evaporation from the same land. Evaporation from land is, with a certain simplicity (ignoring accumulation), the difference between precipitation and runoff. If we have a great outflow of water from a territory, this will be to the detriment of evaporation and will cause a subsequent decrease in precipitation. The volume of water in the small water cycle over land will gradually decrease. With a decrease in runoff, on the other hand, we get greater evaporation and thus we actually "sow the rain."

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The circulation of water on healthy land

The small water cycle, also the short or closed water cycle, is characteristic for a hydrologically healthy country. In a country saturated with water and water vapor, water circulates in small amounts and for relatively short distances.[13] This occurs thanks to a water-vapor induced moderating of the differences in temperatures between day and night or between localities with different thermal regimes. The majority of water that evaporates condenses again in the given region or its surroundings. Frequent and regular local precipitation retrospectively maintains a higher level of groundwater

[13] Below, the one- to three-kilometer boundary layer of the atmosphere is in this context the most significant. Turbulent flows of moisture, warmth and locomotion run there and over 75% of all water vapor in the atmosphere is found there (Prof. Lapin).

and with it also vegetation and further evaporation, so that the whole cycle can be repeated again and again.

Disintegration of the water cycle

If, however, there is an extensive disruption of vegetation cover (for example, by deforestation, agricultural activities, urbanization), solar energy falls on an area with low evapotranspiration and a great part of it is changed into heat. This leads to a significant divergence of temperatures, and the differences in temperatures between day and night or between localities with other thermal regimes increase. Air currents increase, water vapor is taken further away by the warm air and the majority of evaporated water is lost from a country. Light and frequent precipitation decreases, and there is an increase in intense and less frequent precipitation from the seas. The cycle is opened and the large water cycle, which, unlike the "soft" small water cycle, is characterized by erosion and the washing away of soil nutrients into the sea, begins to predominate. The renewal of the domination of the small water cycle, which is advantageous for humanity, vegetation and the land, depends on the renewal of the functional plant cover of a territory and water surfaces in a country.

2.5 The balance of the water cycle

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A balanced equation

The expression "water balance" is understood in hydrology to be a relation which characterizes the circulation of water in a certain system, mainly in a watershed or in its parts. We express it with equations like *(1)*, which show the relationship between elements entering a system (for example, precipitation) and elements leaving a system (for example, evaporation and surface or underground runoff). A third, neglected element exists between the entry and runoff of water and that is the change in the volume of water in a system.

Monitoring of the water balance

Monitoring the water balance of a territory is one of the basic tasks of hydrology and meteorology. Such monitoring consists predominantly of regularly measuring total precipitation and flow rates of water in watercourses through a network of precipitation measuring stations and limnographic stations for selected profiles of watercourses, particularly during their outfall to larger basins, to the waters of neighboring states and to the seas or oceans. In the scope of a meteorological and climatological network, attention is paid, in addition to these parameters of water balance, to the temperatures in a territory, levels of groundwater and the quality of the water.

Mathematical modeling of the climate

Workers from professional institutes subsequently process data obtained from long-term measurement into a long-term series which helps them monitor the current development and trends of the measured quantities. On the basis of different models and results of known data, they create models for the development of these quantities with an eye on the future. Climatology is dedicated to such modeling. A common area for us is perhaps the most well-known modeling of the development of weather by meteorologists, although their models are

built on a different principle. A forecasting service is able, with reasonable accuracy, to model weather one, two, three, even ten days in advance. Climatologists, however, model the development of a climate a number of years or even decades in advance.

A condition for the stability of the climate

A necessary, though not sufficient condition for a stable climate in a territory is a stable water cycle (*Fig. 2*). That's why a very important piece of information, which should be the primary purpose for monitoring the water balance, is the difference between the amount of water which enters into a system and the amount of water which exits from a system. This difference, when positive, indicates to us the addition of water to a system (saturation), and when negative, the loss of water from a system (dehydration). Most models of weather or climate don't really provide this information, however, because they do not calculate it or they do not consider it significant.

A non-zero balance

Amongst both the general public and experts the established notion prevails that this difference is, for large units (such as river basins or whole continents) and for long periods of time (a year or more), equal to zero, or around zero. The conviction that the amount of rain the wind brings from the sea is the same amount of water that flows in rivers to the seas is a legacy of the times when hydrologists first discovered the water cycle. They thus explained an old puzzle: how it is possible that the levels of the seas and oceans do not rise when all the rivers of the world constantly flow into them. Today, however, hydrological measurement shows that the levels of the seas and oceans are rising and at the same time the levels of groundwater are falling, and yet it doesn't seem to have occurred to anyone that the balance between the inflowing and outflowing water cannot be zero. The great danger of neglect threatens just when this difference is very small and yet still on the same side of the equation. In such a case it can lead to the drying of a country over whole decades without hydrologists ever noticing the reason for it.

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Quantification on the level of micro watersheds

Within the scope of hydrology, meteorology and climatology, the water balance of a state and the water balance of the main watersheds in the framework of the state have so far only been monitored on the level of individual countries. The bigger the system, the easier it is to overlook the dangerous one-sided deviation mentioned in the previous paragraph. If, then, we want to analyse a territory effectively, we need to quantify its water balance even on lower levels – on the regional or local level (community or town) or still lower, in which, depending on the size and character of the investigated territory, the ratio of runoff to precipitation can be mutually differentiated *(Tab. 3)*. As we shall later see, the quantification of the water balance can also be necessary on a personal level in the area of land ownership, for example for the proposal of volumes needed for rainwater harvesting on a plot of land.

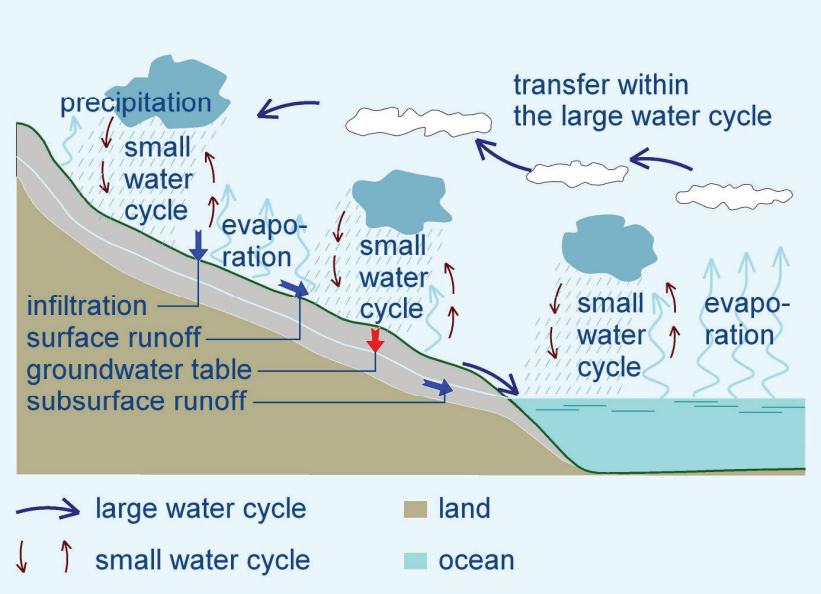


Fig. 1 **The large and small water cycles on land**

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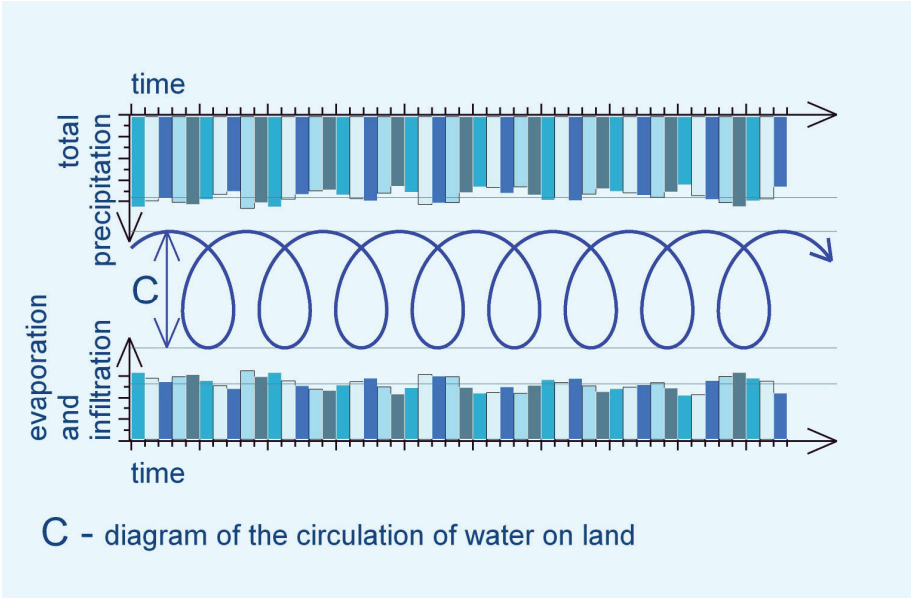


Fig. 2 **Diagram of the long-term stable water cycle on land**

Equation for water balance in a watershed

$$R = E + Q + \Delta V \qquad (1)$$

[+1 % –1 %] – minute changes Q and ΔV in the annual water balance of a watershed

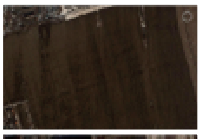
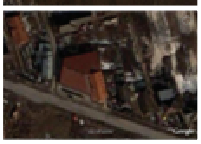
R – precipitation total over an area (per year), **E** – evaporation from a region (per year), **Q** – surface and subsurface runoff (per year), **ΔV –** change in the amount of water in the system (per year) **+1 %** – relatively small increase in the volume of runoff versus the normal level initiated by the increase of runoff of rainwater from a region for the current calendar year (not observable during the current research); **–1 %** – relatively small decrease of supplied water to the soil profile and subsoil compared to the normal level initiated by the increase of runoff of rainwater from a region for the current calendar year;

A volume of 1% can be used, for the purpose of explaining the problem, as an average value of the decrease in groundwater and the speeding up of surface runoff for a normal calendar year during the 20th century. This value approaches zero if it applies to natural land untouched and unchanged by mankind. This value can be greater than 1 in highly urbanized areas with complete drainage of rainwater into watercourses. If we multiply the amount of water corresponding to this percentage, whatever it may be, by the number of years (for example 100 years; we can consider the 20th century as a reference period) we ascertain that this is a considerable amount of water which the land has lost (particularly in the soil profile). Part of this volume at the same time increased in the oceans (after subtracting the increased evaporation from the ocean levels) and along with water from melting glaciers, contributed to the rise in their levels.

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Tab. 3 **Examples of water balance depending on the size of the studied territory**[14]

Water balance of the investigated territory	Amount (mm/ year)	Volume of water circulating	Share of drainage from the total	
Oceans and seas (area 361,455,000 km^2) – evaporation of water from the oceans – precipitation over the oceans – inflow	 1 180 1 070 110	 425 000 km^3 40 000 km^3		
Continent – example: Europe (10,382,000 km^2) – amount of precipitation – infiltration and evaporation – outflow	 750 480 270	 7 790 km^3 4 980 km^3 2 810 km^3	 36 %	
Nation – example: Slovakia (49,035 km^2) – average amount of precipitation at present – infiltration and evaporation – outflow	 762 500 262	 37 km^3	 34 %	
River basin – example: Torysa river basin, Slovakia (area 1,349 km^2) – average amount of precipitation at present i – infiltration and evaporation – outflow	 681 454 227	 3 km^3	 33 %	
Urban area – example: area within city limits of Prešov (19.5 km^2) – average amount of precipitation at present – infiltration and evaporation – outflow	 628 173 455	 0,012 km^3, t. j. 12 mil. m^3	 72 %	
Plot of land – example: field measuring 0.8 km^2 – average amount of precipitation at present – infiltration and evaporation – outflow	 630 397 233	 504 000 m^3	 37 %	
Object – example: residential home with an asphalt driveway (1,217 m^2) – average amount of precipitation at present – infiltration and evaporation – outflow	 630 151 479	 766 m^3	 76 %	

[14] Source of initial data: Slovak Hydrometeorology Institute, Bratislava, Slovakia; *Large Atlas of the World*, Kartografie Praha, Prague, 2000; O. Majerčáková, P. Šťastný: "The Hydrological Cycle". *Environment*, Edition 35, number 3, pg. 123, Insititute of Land Ecology, 2001; Study "Integrated Protection of Water in Prešov", People and Water, 2007

3 THE ROLE OF PLANTS IN THE CIRCULATION OF WATER AND IN THE TRANSFORMATION OF SOLAR ENERGY

May I each day take a wandering walk along banks beside water. May my soul rest on the branches of trees I planted myself. May I refresh myself in the shadow of my own fig tree.

Inscription on an Egyptian tombstone, cca 1400 years before Christ

All praise be yours, my Lord, through all that you have made, And first my lord Brother Sun, Who brings the day and the light you give to us through him…

All praise be yours, my Lord , through Brothers Wind and Air, and fair and stormy, all the weather's moods, by which you cherish all that you have made.

All praise be yours, my Lord, through Sister Water, So useful, humble, precious and pure…

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All praise be yours, my Lord, through Sister Earth our mother, who feeds us in her sovereignty and bears various fruits and coloured flowers and herbs…

St. Francis of Assisi, Song of Creation

This chapter begins by dealing with "fire," the imaginary opposite of water, specifically with the distribution of solar energy on land. It draws attention to the significant role of water and with it the power of vegetation for tempering the burning effects of the sun. It demonstrates the fact that the roles of water and vegetation have in the concept of the greenhouse effect and global climate change been thus far greatly neglected. It focuses also on the possibility of alleviating the effect of climate change by improving management of water and vegetation.

3.1 The flow and distribution of solar energy on land

The philosopher Heraclitus of Epheseus, living at the turn of the sixth and fifth centuries before Christ, according to some ancient fragments considered fire as the prime matter of the world. A little later, Anaxagoras conjectured that the Sun was a giant flaming ball of metal, larger than the Peloponnese. For this he suffered condemnation and banishment from Athens. If we were to figuratively

Ideas about the sun

identify fire with the Sun in the first case and if we were to take into consideration the psychological difficulties of the contemporaries of Anaxagora with the physical nature and the size of the Sun, these two philosophers would probably be two of the ancient authors who came nearest to today's knowledge that the Sun contains 98% of all mass in our solar system. Some 1.3 million Earths could be placed within the Sun.

The sun is the primary source of energy for Earth. For approximately five billion years now, it has illuminated daytime on our planet, doing so thanks to the nuclear fusion in its interior, which transforms light hydrogen into helium. The Sun annually sends about 180,000 teraWatts (TW) of energy to Earth in the form of electromagnetic radiation. Only for the purpose of comparison: the amount of energy which the whole of humanity uses for driving its economy is approximately 14 TW annually. About 1.4 kW of energy falls on each square meter of the outer surface of Earth's atmosphere (the solar constant). Solar energy keeps the atmosphere in a gaseous state, warms our planet to a temperature favorable for life, keeps the circulation of water in motion and provides energy for photosynthesis and other life processes. The energy concealed in fossil fuels also has its origin in solar energy in the transformation by photosynthesis of plants in the long distant past.

Energy from solar radiation

Of the total amount of solar energy which reaches the Earth, about 30% on average is reflected back into space in the form of shortwave radiation, 47% radiates as longwave (thermal) radiation and 23% is consumed in the circulation of water for evaporation. Upon passing through the atmosphere, solar radiation is partially absorbed by gases and water vapor as well as being absorbed and reflected by powdery particles and aerosols. The energy of the radiation in the ultraviolet zone decreases, while the share of longwave (thermal) radiation increases. The solar radiation that falls on the Earth's surface consists of two components: direct and diffuse radiation. Direct radiation forms parallel rays which arrive directly from the Sun (they form shadows), or are refracted upon passing through the atmosphere. Diffuse radiation originates with the dissipation in atmospheric gases, clouds, powdery particles, aerosols and other impurities. Both of these components are present in daily sunlight, but their proportion frequently and very markedly changes.

Solar radiation in the atmosphere

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The amount of solar radiation which reaches the surface of the earth varies considerably in time and space. Solar radiation reaches the surface of the earth in daily and seasonal pulses.[15] The maximum value of the radiation which arrives per square meter per year can reach 3000 kWh. In the temperate zones of our geographic surroundings, the annual input of solar radiation reaches a value of about 1100 kWh/m^2. The amount of solar energy which falls on the Earth's surface is determined by the weather at any given time. The difference in the amount of solar energy reaching the Earth's surface on days of clear and on days of overcast skies is formidable (see *Fig. 3a, b*).

Solar radiation reaching the Earth's surface

[15] The values of solar radiation in different places on Earth can be found on the webpages of NASA (http://eosweb.larc.nasa.gov/sse)

Albedo

The distribution of solar energy depends also on the character of the terrestrial surface. Incoming solar radiation is partially reflected (albedo expresses the ratio of reflected radiation out of total radiation). The amount of reflected radiation depends on its wavelength, on the angle of its fall and on the character of the surface. Vegetation reflects 5-15% of shortwave solar radiation; a dry surface reflects up to 35% of the radiation falling on it while freshly fallen snow reflects up to 90% of solar radiation.

Sensible and latent heat

The fate of incoming solar energy depends significantly on the presence of water in an ecosystem, which strongly influences the distribution of energy between the two primary flows of heat: sensible and latent heat. As the name itself suggests, sensible heat is accompanied by an increase in the temperature of substances or bodies which we can feel. Latent heat is not accompanied by any increase in temperature. Latent heat, in our case the latent heat of vaporization of water, is the amount of energy which water must receive in order to turn into vapor of the same temperature. Let us refresh our school knowledge of physics: evaporation from the free surface of a liquid takes place at every temperature, the intensity of this evaporation increasing with the temperature of the liquid, with the size of its free surface and with the removal of the vapor formed above the liquid. At boiling point, liquid evaporates not only on the surface, but also from the interior as well. The specific latent heat (that is, the latent heat per unit of mass) of water under normal pressure and at a temperature of 25 °C is 2243.7 kJ/kg. This indicates the amount of solar energy which is consumed to evaporate each liter of water without increasing the temperature (This same amount of heat is released later during condensaton of the water vapor in a colder place.).

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Water on land and heat

Of course, water can change into water vapor only if it is present on land. If it is not present, a great part of the solar energy is changed into sensible heat and the temperature of the environment sharply increases. Whereas in a parched country up to 60% of solar radiation changes into sensible heat, in a country saturated with water up to 80% of pure radiation can be bound to the latent heat of the vaporization of water and only a very small portion of solar radiation is changed into sensible heat *(Fig. 4)*.

3.2 Flora, water and the distribution of heat

Water and the dissipation of energy

At the conclusion of the previous chapter we stated that the fundamental difference between drained land and land saturated with water rests on the way solar energy is dissipated, namely in its transformation into other forms of energy. From this fact it follows that terrestrial ecosystems can through active regulation of water

currents significantly influence the distribution of solar energy into two main components: sensible and latent heat. The primary importance of vegetation on land for the climate is in its influence on the transformation of solar radiation.[16]

The distribution of energy in flora

The distribution of solar energy reaching vegetation is represented in *Fig. 5.* Solar radiation reaching the Earth's surface is partly reflected; unreflected radiation is called net radiation. This radiation is partially tranformed (dissipates) through the evaporation of water, is partially changed into sensible heat, partially conducted away as heat to the soil and is partially accumulated in the biomass via photosynthesis. The amount of energy accumulated in biomass is relatively low, with the net production of 1 kg of biomass per square meter representing about 0.45% of the annual input of total solar energy per square meter. The amount of biomass produced in the course of one year (annual primary production) varies greatly between different places on Earth according to the amount of the sun's rays arriving, the stocks of water and the accessibility of nutrients. Generally, the more solar energy there is, the higher the potential production. With the increase in input of solar energy, water becomes the main limiting factor in primary production.

Evaporation and transpiration of plants

The majority of living plants contain a great deal of water in their tissues, with growing biomass containing up to 80-90% water. At the same time, water is also bound to growing tissues through the intake and photosynthetic fixation of carbon dioxide (CO_2). For a 10g daily growth of dry matter per m^2, roughly 14g of CO_2, 1g of nutrients and 80-90g of water are fixed to cell structures and plant tissues. Besides water for the building of tissues, we should also mention in connection with vegetation the consumption of water for evapotranspiration. Evaporation includes the vaporization of water from the soil or from the surfaces of plants. Transpiration is the release of water by plants in the form of water vapor. Plants constantly regulate the amount of water vapor released by the opening and closing of a large number of pores, or stomata, under the surface of their leaves. Together with providing shade, plants, given the right levels of incoming energy, are able to cool and protect the soil, but particularly to optimalize amounts of water which would otherwise very quickly evaporate from the soil and atmosphere. It can be said that the ground "sweats" through plants, with realistic values for evapotranspiration per square meter in the conditions of the temperate climate zone reaching values of 3 litres per day, which represents a latent heat of 2.1 kWh (7.5 MJ). In the mentioned case roughly 3.09 kg of water per m^2 passes through the flora *(Fig. 6).*

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The different abilities for transpiration

Evapotranspiration is a dynamic process which depends primarily on the input of energy and the accessibility of water, a process which increases with the growth of inflowing energy (solar radiation, the supply of dry air, wind). It has a high range of values from zero up to a maximum value (potential evapotranspiration) at which up to 80% of the incoming solar energy is used in the evapotranspiration process. Plants differ greatly in their ability to

[16] Hutjes, R. W. A., Kabat, A., Running, S. W., Shuttleworth, W. J. et al. 1998. "Biospheric Aspects of the Hydrological Cycle." *Journal of Hydrology*, 212 – 213: 1 – 21

evaporate/transpire water. In the temperate zone, the transpiration of evergreens is in general lower than the transpiration of deciduous trees. Wetlands vegetation has the highest capacity for transpiration. On a sunny day in the temperate zone with sufficient water available, natural flora achieves transpiration values of several mm (several litres per square meter per day), values above 5 mm being considered high. Some plants, so long as they have sufficient water available, are able to evaporate in the course of a sunny day more than 20 litres of water per square meter.[17] On developed land, evapotranspiration on sunny days is mostly limited by a shortage of water, so that the values of actual transpiration are markedly lower than those of potential transpiration. From this it is obvious that insufficient water also limits the primary production and circulation of carbon.

The tree as an air-conditioning unit

Transpiring plants, especially trees, are thus the perfect air-conditioning system of the Earth. Let's imagine a large, independently standing tree with a crown of about 10 meters in diameter. On the crown of this tree, which has a surface area of 80 m^2, there falls each day about 450 kWh of solar energy (4-6 kWh/m^2). Part of the solar energy is reflected, part is absorbed by the soil and part is converted into heat. If such a tree is well stocked with water, it evaporates (transpires) some 400 litres of water each day. For the transformation of water from a liquid state into water vapor, 280 kWh is consumed. This amount of energy thus represents the difference between the shadow of a tree and the shadow of a parasol with the same diameter. In the course of a sunny day, then, such a tree cools with a power equal to 20-30 kW, power comparable to that of more than 10 air-conditioning units. The tree is at the same time “fuelled" only by solar energy, is made of recyclable materials, requires a minimal amount of maintenance and emits water vapor that is regulated by millions of stomata which respond to the heat and humidity of the surroundings. The main thing is that the solar energy bound up in water vapor is carried away and is released upon its condensation in cool locations. It thus balances temperature in time and space, unlike a refrigerator or air-conditioner, which release heat into its nearby surroundings. A tree, unlike a refrigerator or air-conditioner, is also completely noiseless, absorbs noise and dust and binds CO_2.

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Evaporation more effective than albedo

The cooling effect of plants caused by transpiration is apparent in *figures 7, 8 and 9.* The pictures in the infrared spectrum show that the leaves of the plants are, thanks to transpiration, visibly cooler than the surrounding soil *(Fig. 7).* The cooling effect of vegetation is also evident from the infrared photographs of the square and park in Třeboň *(Fig. 8).* The temperature of the roofs and facades of homes exceeds 30°C, whereas the temperature of the trees in the park is around 17°C. Vegetation actively cools through the evaporation of water. Vegetation, particularly forests, has a darker color and thus a lower reflectance (albedo) than most other surfaces (clay, sand, etc.). This difference in reflectance is sometimes

[17] Kučerová, A., Pokorný, J., Radoux, M., Němcová, M., Cadelli, D., Dušek, J. (2001). "Evapotranspiration of small-scale constructed wetlands planted with ligneous species." In: Vymazal, J. (ed.): *Transformations of Nutrients in Natural and Constructed Wetlands*, Backhuys Publishers, Leiden, The Netherlands, s. 413 – 427

interpreted as meaning that forests warm the Earth's surface. *From figure 8*, it is obvious that plants, independently of reflectance, cool through transpiration. *Figure 8* again shows that the effect of reflectance is much lower in comparison with the effects of transpiration.

The influence of water on land temperature

A useful tool for judging the state of vegetation and its function during the distribution of solar energy over large areas is to take satellite photographs. *Figure 9* shows photographs of the Mostecka (northern Czech Republic) and Třeboňsko (southern Czech Republic) regions.[18] Mostecko has been greatly affected by strip mining, vast areas of land there having been drained of water. Conversely, in Třeboňsko more than 10% of the land is covered by ponds, and other wetlands have also been preserved here. Temperatures are represented by colors: The highest temperatures are shown in red, orange and yellow, whereas the lower temperatures are colored in green. The highest temperatures are in places without vegetation, particularly in the strip mines and dump areas in Mostecko. The thermal amplitudes are evidently higher in Mostecko, in comparison with Třeboňsko, where the temperature differences are balanced out thanks to its higher humidity.

3.3 The impact of drainage and the removal of vegetation on the release of heat

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Changes in the flows of colossal amounts of energy

Large-scale draining and removing of vegetation is connected with the release of a colossal amount of heat and with the formation of so-called "hot plates" on land. Sensible heat released from just 10 km^2 of drained land (a small town) for a sunny day is comparable with the installation power of all the power plants in the Slovak Republic (6,000 MW). A fall in evaporation by 1 mm per day over the total area of the Slovak Republic (49,000 km^2) leads to release of sensible heat of around 35,000 GWh for one sunny day. This is an amount of heat larger than the annual power production of all the power plants in the Slovak Republic. The effect of human activities on the land is still not fully appreciated. Drainage of developed land is accompanied by a drop in functional vegetation. Under the influence of the negative impact of drainage and the loss of permanently functional vegetation on the rainfall regime and on the distribution of temperatures,[19] we have gradually become victims of degradation and desertification of vast areas of once fertile land.

Neglecting of water in models

In recent years the problem of global warming has become a major topic of discussion. The direct reason for climate change is at present considered to be mankind's production of greenhouse gases (CO_2, CH_4, N_2O, hydrofluorocarbons). Ever more sophisticated models show the

[18] From the Landsat Thematic Mapper and Enhanced Thematic Mapper+ satellite

[19] Ripl W., "Management of Water Cycle and Energy Flow for Ecosystem Control – The Energy-Transport-Reaction (ETR) Model," *Ecological Modelling 78*, 1995, pgs. 61 – 76; Ripl W., "Water: the Bloodstream of the Biosphere". Philos Trans R Soc Lond B Biol Sci. 358(1440), 2003, pgs. 1921 – 34

impact of the growth of concentrations of greenhouse gases. In view of the fact that the circulation of water is very dynamic and complex, water as an important greenhouse gas has been greatly neglected in these models, however. Water is considered to be a stable component of the atmosphere. Reasons for changes in the water regime of a country are difficult to show unequivocally, because they involve a complex of innumerable mutually connected processes.

Drainage worse than greenhouse gases

One measure of the impact of increased concentrations of greenhouse gases is the so-called radiation effect, which expresses a change in the balance between radiation entering into the system of the Earth's atmosphere and radiation flowing out of this system. According to the International Panel for Climate Change, global industrialization (the effects of human activity) has caused, in comparison with the pre-industrial period, warming with radiation effects equal to $1.6Wm^2$. This means that on average about $1.6Wm^2$ more energy falls per square meter of the Earth's surface than in about 1750.[20] In comparison with this value, the impact of a country's water management on its climatic conditions is (at least on local level) appreciably larger.

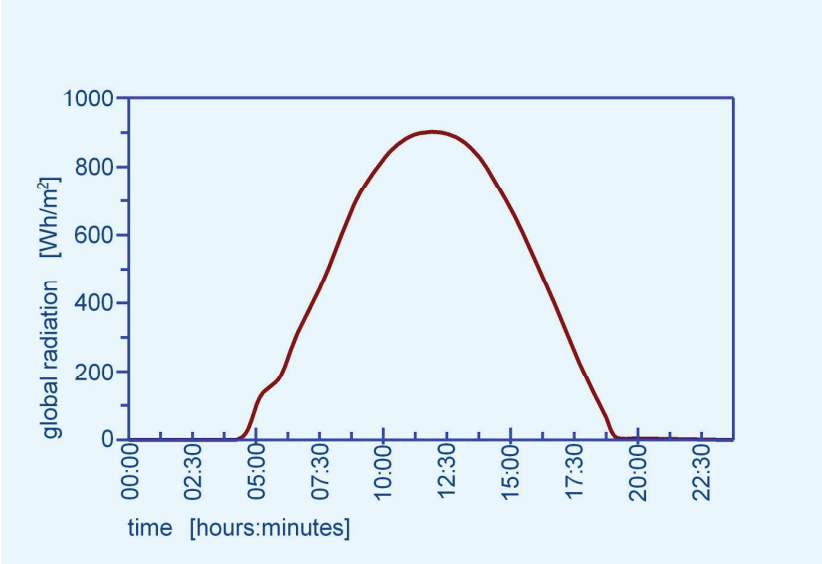
Vegetation for tempering climatic changes

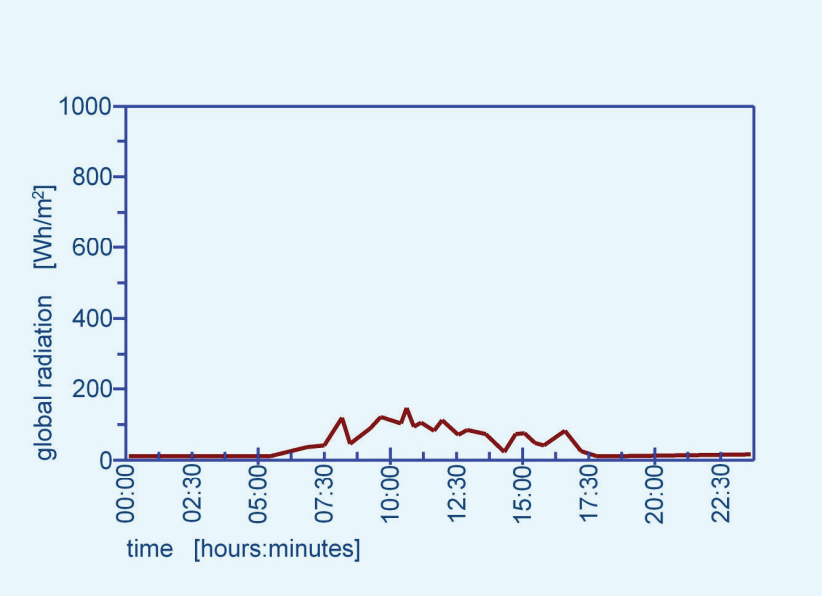
The development of our climate in the future is perhaps difficult to envision, even though scientists are constantly discussing these questions. It has become even more difficult to forecast the long-term trends in the weather in recent times; we meet with extreme precipitation, extreme temperatures, and prolonged periods of drought.

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One condition for the alleviating of climatic change is the renewal of those basic ecological functions which are closely connected with the return of water and vegetation to the land. The functions we particularly have in mind are the soft dissipation of solar energy through the circulation of water, the absorption of carbon dioxide and the keeping of nutrients and substances on land. The return of vegetation and water to land can only have a positive effect. With sensible management of water and vegetation we can curb climatic change on the local level; if we can act in the same way across larger areas, perhaps we can expect a tempering of global climate change.

[20] IPCC, 2007





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Fig. 3a, b **Values of solar radiation on a clear day and on a cloudy day**
(recorded on 18 July 2006 and 3 August 2006, in Třeboň, Czech Republic)

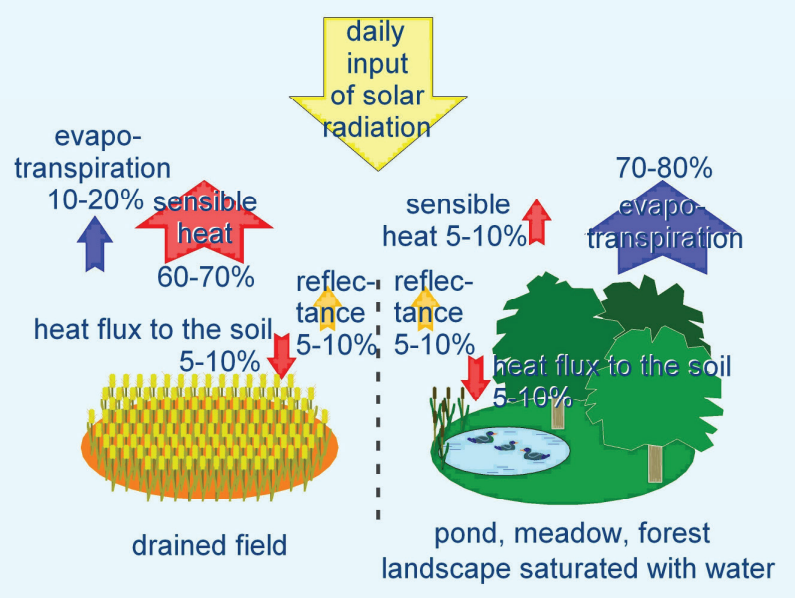


Fig. 4 **The distribution of solar energy on drained land and on a landscape saturated with water**

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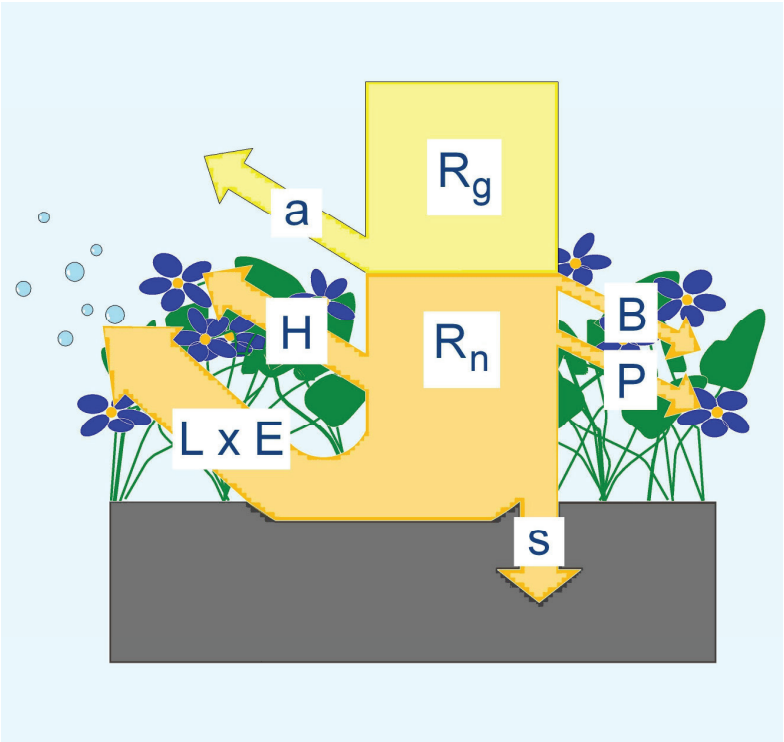


Fig. 5 **The distribution of solar energy on vegetation**
Rg – global radiation, Rn – net radiation, a – albedo (reflected radiation), H – sensible heat, L × E – latent heat x evapotranspiration (evaporation from soil and vegetation), s – flow of heat to the soil, B – accumulation of heat in the biomass, P – consumption of energy for photosynthesis

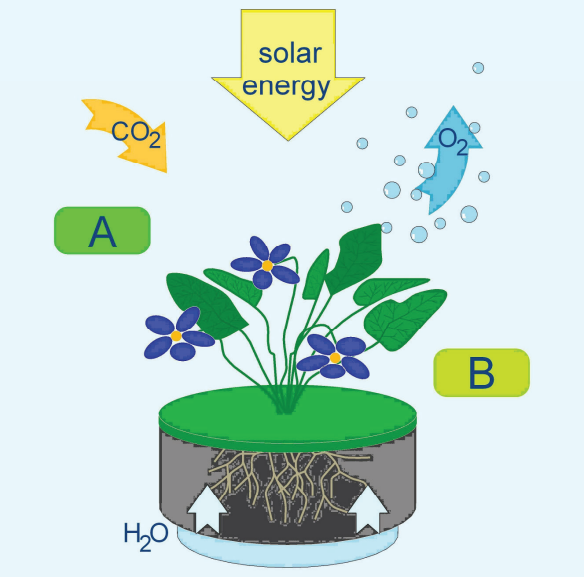


Fig. 6 **An example of the daily energy balance of CO2 and H2O fluxes per 1 *m2* of vegetation stand:** A: For the creation of 10g of dry matter, 48Wh (170kJ) are consumed for the fixing of 14g CO_2 (0.32 mol). B: Evapotranspiration (3 l) requires 2.1 kWh (7.5 MJ).

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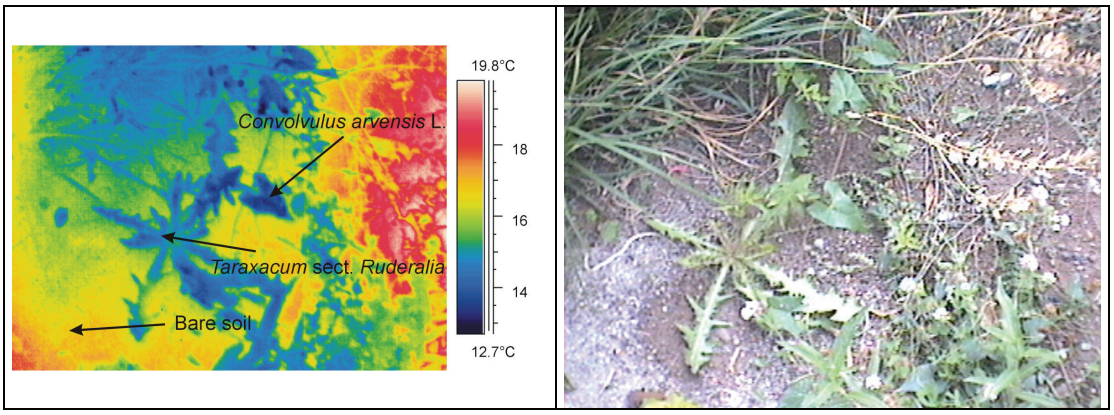


Fig. 7 **Photographs of thin vegetation in the infrared spectrum and in the visible spectrum**. The bare surface of the ground is visibly warmer than the surface of the leaves cooled by transpiration. (Třeboň, Czech Republic, 12 July 2002, 10:00 hrs).

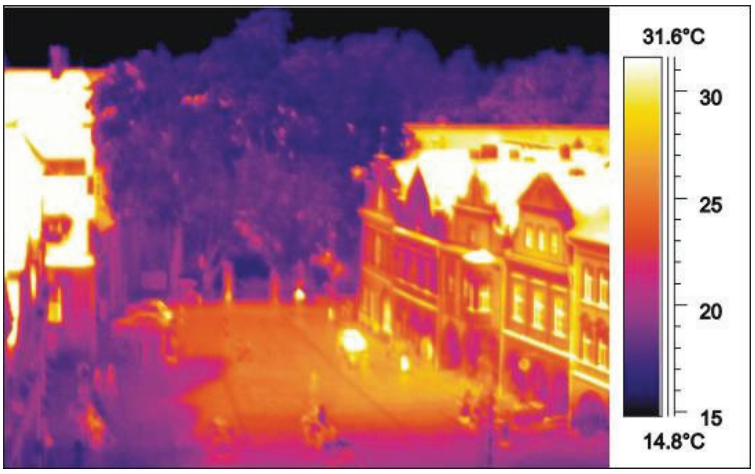


Fig. 8 **Photograph of the square and adjacent park in Třeboň, Czech Republic, taken with a thermal camera**
The differences in temperatures between the vegetation, facades and roofs of the houses is visible.

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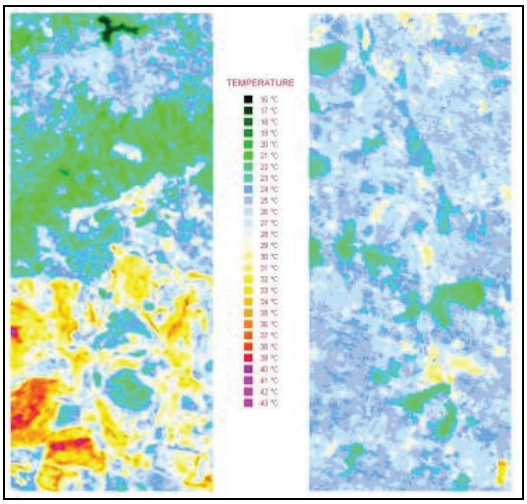


Fig. 9 **Comparison of the distribution of sensible heat in two different types of land (Mostecko and Třeboňsko)**
The pond-covered Třeboňsko with wetlands shows a lower regional temperature difference (right) than the drier land of Mostecka (a strip coal mining area), which has insufficient vegetation (left).

4 THE IMPACT OF THE EXPLOITATION OF LAND ON THE CIRCULATION OF WATER

The Slavonic countries stretch from the Mediterranean Sea through to the Northern Seas... The Slavs build most of their own castles...on meadows rich in water and bushes...they reside in the most fertile lands, rich in different means of subsistence. They till the soil very intensively to provide themselves with enough food... Famines caused by long-term drought don't exist in [their] lands. On the contrary. Famine can break out when it rains too much... If it rains only a little, they do not have poor results, because these lands are damp...

Ibrahim Ibn Jacqub at-Turtushi, *About the Western Slavs,* middle of the 10th century [21]

During the whole of its history, humanity has reshaped natural land into civilized land. The land thus obtains a cultural memory of individual civilizations, nations and generations. This memory is expressed distinctively in the attitude of people towards water. No civilization has ever trivialized the significance nor the need for water. Few, however, have known how to adequately assess the consequences of their own behaviour and create a method for reshaping the land in order to conserve water in the environment and ensure its long-term abundance. From the perspective of shaping a land through human activity and attitude towards water, we will now consider forested land, agricultural and urban lands, as well as the bodies of water in them.

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4.1 Forests

Deforestation in prehistory

Deforestation is not a new phenomenon in human history and has probably been going on since the time mankind started using fire. As people began to live by hunting, fire could serve as an aid for scaring up animals or for obtaining new living space or hunting grounds. With the development of pasturage and agriculture, deforestation served as a way of obtaining new land for these activities. With the development of the settled way of life, and even more, after the replacement of the stone axe by the bronze one, wood became a material with multipurpose uses: for building, for the production of working tools, weapons or boats and last but not least, as an accessible fuel for burning, whether for heating, cooking or for metalwork.

Deforestation in antiquity

The negative consequences of deforestation in the form of erosion and flooding affected the oldest known civilizations, which consumed a great deal of wood. The oldest works of classical literature, such as the *Epic of Gilgamesh* and the Bible, as well as ancient authors such as Herodotus, Plato, Pliny, Strabo and others, all reflect these processes. Today it is difficult to believe that

[21] Cited from the book: *Slovakia through the Eyes of Foreigners, Sources of History of Slovakia and Slovaks II*. Literary Information Center, Bratislava, 1999, pg. 242

great areas of the Middle East were, in the 3rd century before Christ, covered by thick cedar forests. They were, however, so devastated that Emperor Hadrian at the beginning of the 2nd century had to issue an order forbidding their felling. Wood from them was used largely in massive building projects and for construction of Phoenician boats. Prior to the development of agriculture, oak, beech, cedar and pine all grew in the Mediterranean region. Now, though, only the cultivated olive, which ranks among the most drought-resistant trees because its roots can reach up to 10 metres deep, remains. Some contemporary authors ultimately consider deforestation, with its consequent degradation of the environment and loss of productivity of the land, as the reason for the fall of the Roman Empire. A similar situation to the one in the Mediterranean and Middle East also arose in Afghanistan and in Central Asia. Civilization in the Indus Valley collapsed after deforestation around the year 1400 BC.[22]

Deforestation as the expansion of civilization

Europe to the north of the Roman Empire was almost entirely covered with thick forest, a fact that aroused astonishment and fear in the Romans. The impenetrably thick forests were in their eyes home to dangerous wild animals, inscrutable barbarians and goblins and were full of swamps and other unknown dangers. To the Romans' imagination, the forests became the exact opposite of civilized life in the town or the peaceful peasant life in the fertile flood plains of rivers. The expansion of civilization, therefore, became identified with deforestation. This idea, supported by economic arguments, persisted even after the fall of the Western Roman Empire and was present during the formation of Europe during the Middle Ages.[23]

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The abundance of forests from the time of the old Slavs

According to preserved scraps of information, the old Slavs, prior to the acceptance of Christianity, envisaged the world as a gigantic tree. On top of this tree lived Perun, the god of thunder and lightning, as well as weather. In many Slavic lands Perun was the highest of the gods and his worship was geographically the most widespread. We can only speculate whether the saturation of the small water cycle, accompanied by frequent local showers thanks to the gigantic retention of water of the forested land, was the result of the fact that Perun was placed on the highest point in the Slavonic pagan pantheon. In any case, Perun's opposite and most serious antagonist was, according to Slavonic mythology, the god Veles, who resided in the underground regions around the roots of the world tree and was associated with water, earth and dampness. From observation of the rising mist from the forests, the image obviously emerged from our ancestors that Perun and Veles stole one another's water (and the sun). At the time of the arrival of Christian missionaries Saints Cyril and Method to the territory of Great Moravia in 9th Century, forest covered about three-quarters of the territory of today's Central Europe.

Deforestation in the modern age

Deforestation, which was in Europe most intensive in the first half of the last millennium and in the USA from the 17th to the 20th centuries,

[22] J. Pokorný, *The Development of the Land Under the Influence of Humans*, 2003
[23] Felipe Fernandez-Armesto, *Civilizations – Culture, Ambition and the Transformation of Nature*, Simon & Schuster, ISBN 0-7432-0248-1, 2002

reached its peak in many developed countries in the 20th century. The overall global rate of deforestation of continents is at present, according to data from the FAO, more than 120,000 km^2 per year. The total extent of deforestation of the continents is significantly higher than the natural growth of new and native forests (with the exception of Europe and the USA, where this trend has been stopped). A lowering in the quality of forest vegetation is, for many reasons, also occurring. Old-growth/primeval forests, which likewise face deforestation and the primacy of economic interests, have a special role in the world's ecosystem. Deforestation of land and the lowering of the quality of forest vegetation is accompanied by an increase in the speed of the runoff of rainwater and water from melting snow in the given areas, as well as the rapid erosion of soil. The microclimatic conditions of areas are also changing.[24] These phenomena, which have led to the decline or extinction of numerous great civilizations in the past, are as a consequence of the expanding technical possibilities of humanity today present throughout the entire world.

Plato, in his unfinished work *Critias*, wrote about a war between the residents of Atlantis and Athens-led inhabitants of the continent which had supposedly taken place 9000 years prior to Plato's discussion. Alongside the idealized description of fabled Atlantis there is in the work such a rudely and realistically captured process of water erosion following the devastation of the forests around Athens that one can't help getting the impression that Plato wrote about something he was seeing with his own eyes:

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"…The land was the best in the world… in those days the country was fair as now and yielded far more abundant produce… Many great deluges have taken place during the 9000 years...and during all this time and through so many changes, there has never been any considerable accumulation of the soil coming down from the mountains, as in other places, but the earth has fallen away all round and sunk out of sight. What happened is like a body growing thin to the bone as a consequence of an illness. All the richer and softer parts of the soil have fallen away, and there remains the mere skeleton of the land. But in the primitive state of the country, its mountains were high hills covered with soil, and the plains, as were full of rich earth. There was abundance of wood in the mountains. Of this the last traces still remain. Although some of the mountains now only afford sustenance to bees, not so very long ago there were still to be seen roofs of timber cut from trees growing there, which were of a size sufficient to cover the largest houses; and there were many other high trees, cultivated by man and bearing abundance of food for cattle. Moreover, the land reaped the benefit of the annual rainfall, not as now losing the water which flows off the bare earth into the sea, but, having an abundant supply in all places, and receiving it into herself and treasuring it up in the close clay soil, it let off into the hollows the streams which it absorbed from the heights, providing everywhere abundant fountains and rivers, of which there may still be observed sacred memorials in places where fountains once existed; and this proves the truth of what I am saying…"

[24] See, for example, Eneas Salati, Carlos A. Nobre, Possible climatic impacts of tropical deforestation, Climatic Change, Volume 19, Numbers 1 – 2 / September, 1991

4.2 Agricultural land

Neolithic revolution

One of the most important revolutions in human history was the change from the hunter-gatherer way of life to a life of agriculture and pasturage. The impetus for this changeover was clearly a global warming of the climate after the end of the Ice Age. We can observe that, approximately 10,000 years ago in the Middle East (the region of the so-called "Fertile Crescent", that is, the lands from the mouth of the Euphrates through the valley of the Jordan up to the mouth of the Nile), China and sooner or later in other parts of the world, a more or less spontaneous move towards the cultivation of agricultural crops and the rearing of domestic animals took place. Alluvial agriculture in the valleys of great rivers gradually put a seal on the first great centers of civiliation, which were usually distinguished by a high level of organization, a network of irrigation and drainage canals, large-scale agricultural production maximizing the utilization of the soil and cultivation of a small number of crops which were not natural to the given land, i.e. crops which without the help of humans would not thrive.[25] This Neolithic revolution, which from the viewpoint of the whole of human existence took place not so very long ago, gradually created through the ensuring of a food base the conditions for a whole range of civilizational changes such as greater population density, the establishing of larger population centers, a division of labor, trade, the development of knowledge and so on.

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Cultivation of cereal grains

Some edible seeds of grasses proved to be exceptionally suitable for agricultural cultivation. Besides advantages such as rapid growth and simple cultivation, they above all provided valuable sources of energy and could be stored easily. They became the basis for cultivation of grains which were to become the most widespread crop for human nutrition. In Europe, but also in many other parts of the world in the temperate climate zone, the cultivation of wheat and barley, which we can assume were the first such domesticated crops, has dominated since the times of the Neolithic revolution. These have retained the traits of the annual steppe grasses from which they were cultivated and therefore require steppe-like conditions to grow. The soil for their cultivation therefore has to be drained of water.

Climate change

For their cultivation of grains, people drained agricultural land and over huge areas created a cultured steppe. With the change in the character of the land, the climate also changed,[26] and where land had been drained of water, it became necessary to irrigate it again. Today we don't know the reasons for the drying of the climate over great regions and which occurred many times over in the first half of the Holocene period. We cannot even exactly determine whether and possibly what share ancient civilizations had in them.[27] We don't know whether the draining of

[25] Felipe Fernandez-Armesto, *Civilizations – Culture, Ambition and the Transformation of Nature*, pg.174

[26] Virginia H. Dale, "The Relationship Between Land-Use Change and Climate Change," Ecological Applications, 1996, pgs. 753 – 769

[27] J.A. Dearing, "Climate-Human-Environment Interactions: Resolving Our Past," Cim. Past, 187 – 203, 2006

land was the primary reason for the extinction of some of these civilizations. We should, however, keep this possibility in mind, because despite all the differences, we are probably arriving at a similar process of the dehydrating of land, a process which has results that we cannot know.[28]

Fate of the Sumerians

The intensive cultivation of barley and wheat expanded from the Fertile Crescent to a wider world. Possibly the final act of their cultivation was written by the "discoverers of agriculture," i.e. the Sumerians, who lived in southern Mesopotamia from the 4th to the early 2nd millennia before Christ. The exceptionally successful nation of the Sumerians intensively cultivated, over great areas of land, monocultures of the mentioned crops along with other produce. Using a system of canals, they brought water from the Euphrates and Tigris rivers, and using a system of drainage canals, carried it away. The soil, despoiled of natural vegetation and subjected to an annual cycle of irrigation and drainage, became salty and stopped producing yields. The power of the Sumerians waned, their numbers decreased, the country became a desert and they were overcome by enemies and ultimately assimilated. Other great civilizations founded on alluvial agriculture underwent a similar fate to that of the Sumerians of Mesopotamia. In many of them we can witness over a period of two to four thousand years a further decrease in levels of rainfall and subsequently the civilization's extinction or transformation.

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Further revolutions in agriculture

The Middle Ages contributed to the development of agriculture, for example by introducing the yoke, which allowed for deeper plowing and a change from dual crop rotation to triple crop rotation. Another revolutionary change brought in a new age of agriculture: a boom in natural and artificial fertilizers, pesticides, specially bred plants which achieve much higher yields, as well as a growth of mechanization which allowed for the tilling of much larger areas than in the past. The Green revolution in the middle of the 20th century spread the technology used in the West across almost the entire world and helped feed the rapidly growing number of people on the Earth. The Red revolution in socialist countries collectivized the small fields of small peasant farmers, plowed over boundaries and united plots of land into units of scores, even hundreds of hectares. Gigantic fields with no natural barriers, field zones or protected bands of vegetation limiting surface runoff from the land, were presented as great leaps forward *(Fig. 10)*. With the goal of maximizing the hectare yields of cultivated monocultures or disposable tracts, extensive drainage using gravitation systems or pumping stations was carried out. Additional irrigation of these fields is no substitute for the need to conserve rainwater on the land, although it partially contributes to the return of the water drained from the land.

Erosion, degradation and the carrying away of soil

Thus, alongside the changes in microclimatic conditions *(Fig. 11)* on such agricultural land, the speed of the surface runoff of rainwater also increased, as did the water-caused erosion associated with the destruction and displacement of soil *(Tab. 4)*, which led to the

[28] See, for example, Deepak K. Ray et al., "Influence of Land Use on the Regional Climate of Southwest Australia," 13th Symposium on Global Change and Climate Variations and 16th Conference on Hydrology, 2002 (http://ams.confex.com/ams/pdfpapers/29880.pdf)

degradation of the quality and even the devastation of the land and the emergence of desolate ground. Of the mentioned processes, the most serious phenomenon is the displacement (loss) of soil. It seems, however, that the displacement of soil in our country is among the least monitored of phenomena and that pedologists lag behind in research just as hydrologists lag behind in the monitoring of the decrease in water on the land. And thus, there is no one to cause any commotion. While the creation of soil is tallied up in the hundredth or even thousandths of millimetres annually, erosion runs rampant at a rate many times greater.

Soil erosion in Slovakia

In Slovakia the real loss of soil through water erosion runs on average in the forested vegetation of the middle to upper mountain regions at about 0.01-0.03 mm/year, in permanent grasslands at around 0.06 mm/year, in cereal fields at 1.8 mm/year, on bare ground above the tree line at 3.4 mm/year and in root crop fields up to 3.6 mm/year.[29] This means that in many regions of Slovakia we lose precious agricultural soil which has been formed over centuries or even millennia. In view of the fact that soil is so slowly created, it can be considered as a non-renewable resource. It can thus be said that we are living off our very foundations.

Potential loss of soil

The urgency of measures needed to combat water-caused erosion become still more urgent with the view of potential (possible) water-caused erosion of the soil. This involves erosion which would occur naturally on the surface of the soil if it were not protected by vegetation even without anti-erosion measures. The average intensity of such possible erosion represents in Slovakia 2.3 mm each year (23 m³ of soil per hectare per year). Water erosion of moderately, strongly and extremely threatened agricultural soil in Slovakia represents 55.6% of all agricultural land in the national land fund. Moderately, strongly or very strongly to catastrophically threatened forested land comprises up to 97.1% of all forested land in the fund (*Tab. 5*).[30] From the comparison of data about real and potential water-caused erosion in forests, it becomes imperative to maintain forestation to the extent that conditions allow. A further conclusion should be the need for urgent forestation, particularly of desolate lands, which would allow for the fulfilling of the anti-erosion and hydric functions of the forest on them.

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[29] Rudolf MIDRIAK, "From Threats of Erosion to the Desolation of the Soil in Slovakia," Third Soil Science Days in the SR, VÚPOP Bratislava, 2004, p. 193 – 200
[30] ibid.

Tab. 4 **Actual water-caused erosion of agricultural soil[31]**

Level of erosion	**Linkeš, et al. (1997)** (thous. ha)	**Environment Ministry SR (2002)** (% PPF)
Low erosion	1 198	47
Moderate erosion	514	22
High erosion	49	2
Extremely high erosion	24	1
Total	1 785 thous. ha (73.1 % PPF)	72% PPF

Tab. 5 **Erosion threatening soil according to the type of land in Slovakia under the influence of surface runoff of water (potential water erosion)[32]**

Threat of erosion (degree)	**Intensity of potential erosion (bearing away) of soil**	**Agricultural land**		**Forested land**		**Total**	
	(mm per year)	(thous. ha)	(%)	(thous. ha)	(%)	(thou s. ha)	(%)
1. minute	up to 0.05	107	3.4	3	0.0	110	2.2
2. weak	0.06 – 0.50	1 296	41.7	117	6.6	1 413	28.9
3. moderate	0.51 – 1.50	823	26.5	333	18.7	1 156	23.6
4. strong	1.51 – 5.00	783	25.2	1 075	60.3	1 858	38.0
5. very strong	5.01 – 15.00	100	3.2	255	14.4	355	7.3
6. catastrophic	over 15.00	1	0.0	1	0.0	2	0.0
Average / total	2.30	3 110	63.5	1 784	36.5	4 894	100.0

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"More things have changed in the memories of the oldest living people in our country today than in the previous one thousand years. In our time, in the past 75 years, it is businesses that purport to improve our lives which are responsible for these changes. They are draining the soil and in so doing, damaging its chemical solutions. The fact that fens, old branches of rivers, swamps and high places on uplands are all being drained of water is contibuting to a change in our climate, with a greater contrast between severe winters and summers with fewer clouds and isolated periods of drought and flooding. The fact that these improvements allow the peasants to plough up any pasturage and drained bottomland, means that layers of topsoil are being uncovered and washed away, with no new topsoil being created in its place."

Vladimír Úlehla,[33] 1947

[31] Rudolf MIDRIAK, "From Threats of Erosion to the Desolation of the Soil in Slovakia."
[32] ibid.
[33] Cited from the publication Míchal I. *Ecological Stability*. Veronica, Brno, 1994, s. 200

4.3 Bodies of water

Hydraulic civilizations

As was mentioned in the previous chapter, the greatest human civilizations which led humanity out of the Stone Age into antiquity originated along the Nile, the Euphrates and Tigris, the Indus, the Yellow Rivers and others. These civilizations are sometimes called "hydraulic civilizations,"[34] because their alluvial agriculture depended on watercourses and extensive networks of canals, which besides the function of transportation, had the particular task of bringing and taking away water during regular annual floods. Surface water was a key for irrigation, coming once each year and taking the place of missing rainwater.

Initially other conditions here

These civilizations were thus, from a climatic-agricultural point of view, completely different from that of our ancestors after their arrival in Central Europe, where, thanks to a high degree of forestation, rain fell frequently. The ability of the land to retain water was furthermore so high, that according to testimony of the Spanish trader Ibrahim Ibn Jacqub at-Turtushi from the middle of the 10th century, even in those cases, *"if it rains only a little, they do not have poor results, because these lands are damp."* For a view of the countryside in our area, we can, to a certain extent, form an image from period landscape paintings hanging in galleries. Landscapes from the 19th century show a wealth of surface water in unregulated rivers gushing out into wide riverbeds, their lush plant life suggesting a living communication with the groundwater. If Romanticism was to come back into fashion today, it would struggle to find similar scenery to depict.

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Pressure for the altering of watercourses

In the time of expansion of agricultural development, settlements and industrial sites moved nearer to watercourses, a fact which led to a fear of flooding. Along with this came the need for agriculture to expand cultivated areas. During the development of transportation it was necessary to crisscross flows of water. The need to use water currents more intensively for transportation purposes also arose, hence the need to start making alterations and regulations of rivers *(Fig. 12)*. The alteration of water flows usually entailed shortening their total length (many naturally blindly meander), reinforcing the banks and the bottoms of watercourses and raising levees alongside them. Many adjacent fens and swamps which were connected with river ecosystems were also drained. Many bottomlands which had once served for the meandering of watercourses or for the spillage of water outside of riverbeds during increased periods of rainfall were built over, and the original body of water was now given a precisely determined place and cross-section profile. We should add to this that often the problem of flood protection has been misunderstood, the mere raising of banks or protective levees and the deepening or enlarging of the watercourse's cross-section profile for better drainage of flood waves in a given community not always being the solutions they seem. This is because the performing of such alterations without judging the context of the entire river basin and territory only raises the risk of floods in communities and towns which are located further downstream.

[34] According to the book by Karl A. Wittfogela *Oriental Despotism* (1957).

Acceleration of runoff of water from land

The primary negative effect of the mentioned modifications was the acceleration of the runoff of water from the land and the lowering of the land's ability to retain water. The mentioned "civilizational" alterations of watercourses contributed to a gradual decrease in the amount of water in the water cycle and disproportionately decreased the relative head start our country had in comparison with others, which were not blessed with such favourable climatic conditions and an abundance of water. In the end, large waterworks like dams, which in the recent past were built for the utilization of water energy, the transformation of flood waves or the creation of reserves of drinking water, are according to research paradoxically less effective from the viewpoint of conserving water on land than a large number of smaller reservoirs with the same total volume.[35]

4.4 Towns

The urban revolution

As we have already mentioned, one of the most important revolutions in human history was the Neolithic agricultural revolution. In both significance and time this is followed by the urban revolution. The emergence of towns and city states is one of the milestones in the transition from prehistoric to historic times for humanity. We know of towns like the biblical Jericho (and some others) whose existence goes right back to prehistoric times. However, cities with all the attributes that differentiate them from mere settlements, not only in their number of citizens but also in the organization of life (for example, keeping written records about its administration), date, according to current knowledge, from the times of the Sumerians in the period from 3100 to 2900 BC in lower Mesopotamia. Almost at the same time, towns began to emerge in Egypt and in the valley of the River Indus. Many authors give the need for a high level of organization arising from the challenge of implementing alluvial agriculture as one of the reasons for the emergence of cities in the so-called "cradles of civilization." The detailed reasons for the emergence of ancient cities, their attributes and the cause of their extinction are not subjects for this publication to address, however.

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The achievement of sewerage

Cities enormously speeded up the development of civilization—both for good and for bad. At this time let us briefly focus our attention on an exceptional achievement which emerged during the first urban revolution and which was destined later to make a return: the sewerage system. The ancient towns of Harappa, Mohenjo-daro and Rakhigarhi in the Indus valley (present day Pakistan) are the first known cities in the world to build a city sewerage system, and they did so 2600 years before Christ. The sewerage system was covered, walled, bordered the streets and was connected to private homes and public buildings, and last but not least, to baths and flushing toilets. The overwhelming majority of countries in the world had to wait until the second urban revolution, practically until our own times, for their own systems.

[35] Brad Lancaster, *Rainwater Harvesting for Drylands, Vol. I.*, Rainsource Press, Tucson, Arizona, ISBN 0-9772464-0-X, 2006

The second urban revolution

History sometimes repeats itself, but according to Heraclitus we can never step into the same river twice. The second urban revolution is associated with an industrial revolution. The start of the industrial revolution, the end of slavery and serfdom as well as the development of a market environment, allowed the free movement of people and enabled a more dynamic movement of the workforce. This period of growth and economic prosperity was also the beginning of new global growth in the world population, which since the year 1800 has grown six-fold to today's population of more than 6 billion people. It was also a period of migration from villages to towns, of an increase in the share of people living in cities versus villages, as well as a shift in the mentality and values of people from the village to the city—sometimes for good and sometimes for bad. This process, which lasted a long time in Western Europe and in North America, is especially visible in the second half of the 19th century. In Slovakia, the process of urbanization with all its attendant attributes began about 100 years later and occurred more intensively, de facto within the life of one generation. The percentage of urban dwellers between 1960 and 1990 in Slovakia increased from 30% to 56% (where it approximately remains today), but did not reach the same levels as in Western Europe.

Impermeable surfaces and the sluicing away of water

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The details of the second, or even the third urban revolution, associated with urban decentralization and with the emergence of post-industrial society, are not the subject of this publication, but we want to again focus on sewerage. Our modern cities, and increasingly our villages, too, unlike the cities of the old Sumerians, have their own sewerage systems *(Fig. 13)*. Furthermore, unlike the old cities from the Indus valley, other cities of antiquity, the Middle Ages and the larger part of modern times, our modern cities and more and more villages, are paved and their surfaces are reinforced with impermeable materials.[36] The development of technology allowed for the invention of ingenious and powerful building machines and mechanisms which were able to shape the surface of the land for the construction of buildings, roads and other requirements of modern life more quickly than at any time in the past. The mass use of cement and asphalt began to predominate in the building of cities and the transformation of rural environments into urban ones *(Fig. 14, 15)*. The shortage of space and the need for comfort caused rainfall over cities or urban spaces to be perceived as a kind of burden. So, rainwater began to be perceived more as wastewater, which is carried away by public sewerage, in most cases along with sewage water.

Giant volumes of water sluiced away

So now nearly all rainwater from the cities of Europe is carried to rivers and eventually to the seas from paved and roofed areas by rainwater sewers. According to estimates, more than 20 billion m^3 of rainwater are sluiced away each year from the European continent. Over the past 50 years, then, more than 1000 billion m^3—that is, 1000 km^3—of rainwater, which in the past saturated the ecosystem and soil, filled out the stocks of groundwater,

[36] Sid Perkins, "Paved Paradise? Impervious Surfaces Affect a Region's Hydrology, Ecosystems – Even its Climate," *Science News*, week of Sept. 4, 2004; Vol. 166, No. 10 , p. 152

replenished springs and through its evaporation, moistened the climate, has been sluiced away from the European continent. Last but not least, the rapid runoff from paved urban environments with sewerage systems contributes to the higher occurrences of flooding threatening populations downstream. The most serious fact, however, is that, for a long time, we have been draining the environment in which we live. We are causing a long-term drop in groundwater supplies beneath our paved and roofed surfaces; we are causing a growth in temperatures in city structures, a fall in atmospheric humidity, a start of civilizational diseases typical for urban environments and a worsening of the quality of our environment as a whole.

The dissipation of water in towns

Added to the multiple effects of cities, it is also necessary to consider the drawing of water from the ground for the purposes of drinking and other functions, all of which have a great cumulative effect. This drawing of water goes on without ensuring the adequate return of water gained from territory back into the land. The water instead runs out into the sea after use. Cities which profligately and expensively let millions of cubic metres of rainwater flow into their sewerage systems will later face worsening shortages of drinking and utility water, shortages which in many cases will become chronic. Insufficient drinking water is thus not only a problem of poor but also of prosperous cities. Obviously, cities in developing countries have their own particularities. The poorer parts of cities in many developing countries are permanently dependent on wood for uses such as fuel and thus the forests in their surroundings are systematically cut down.

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Change of climatic conditions

Drainage and deforestation lead to the fact that towns, while growing, change the microclimatic conditions of the original territory. They are becoming urban hot islands over which a hot climatic umbrella is growing (*Fig. 16*). These "islands" are slowly but surely changing the flow of clouds and the movement of winds over their territory and in their surroundings. Particularly in the summer, they push precipitation to the cooler mountain regions, which consequently increases the risk of extreme torrential rains in the mountain regions and floods which threaten mountain valleys as well as populations in the lowlands downstream on rivers. And here we have a much more direct and logical cause for climate changes and the rising extremes of weather than the impact of a 30 percent growth in the fractional content of CO_2 in the air over the past 150 years.

Water management is unsustainable

More than half of the Earth's inhabitants live today in cities, a share of the population which will continue to grow significantly. Cities have become a kind of new-age factory of economic prosperity which slowly and gradually absorb their surroundings.[37] Thus mankind, through developing land for agriculture and other human activities, has now "claimed for itself" more than 40% of the area of all continents. It's necessary to emphasize that a solution for the problems mentioned in this text exists and that population growth in itself is not in conflict with permanently sustainable development. Instead, what is in conflict with permanently sustainable development is the present method of managing water on land.

[37] Urban Sprawl in Europe - The Ignored Challenge, ISBN 92-9167-887-2, EEA Report No. 10/2006



Fig. 10 **Agricultural land beneath the Tatra Mountains**
Giant fields that originated during communist era with the collectivizing of tracts of land. Due to the absence of barriers, rapid surface runoff causes water erosion of the soil.

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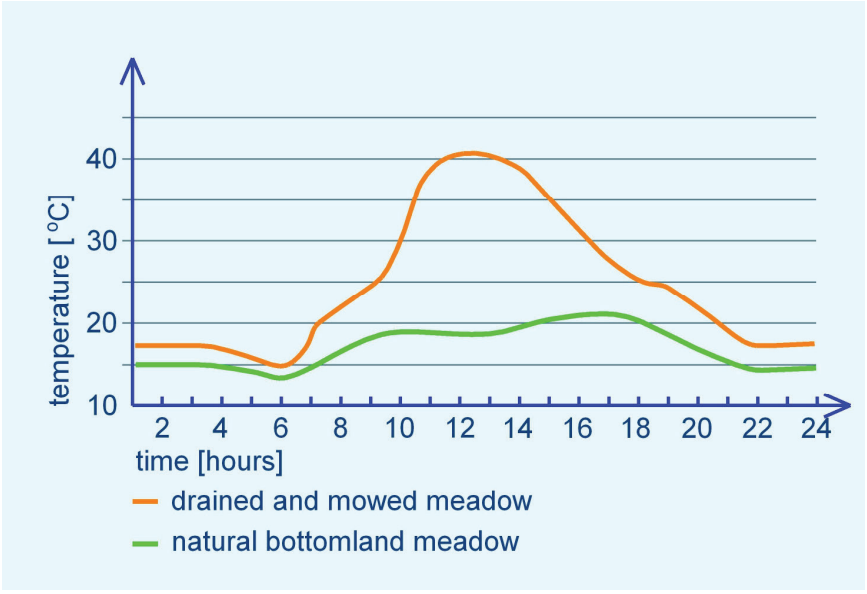


Fig. 11 **The daily course of temperatures on the surface of soil on a drained and mowed meadow and on a natural bottomland meadow**



Fig. 12 **Alteration of the Latorica River in the 1960s**
This was a component of the program of drainage of the eastern Slovakia lowlands.[38]

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Fig. 13 **The sluicing away rainwater**
The original aim of owners was to achieve "dryness and warmth". The fulfilling of this goal is beginning to get out of control.

[38] *Slovakia – Encyclopaedia*, Published by Veda, 1972



***Fig. 14* Gigantic areas covered with impermeable materials**
On sunny days they become "hot islands" which transform most solar energy into sensible heat.

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***Fig. 15* An asphalt road and a perfectly paved canal in a city environment**
Some solutions don't allow even the smallest amount of water to infiltrate the soil.

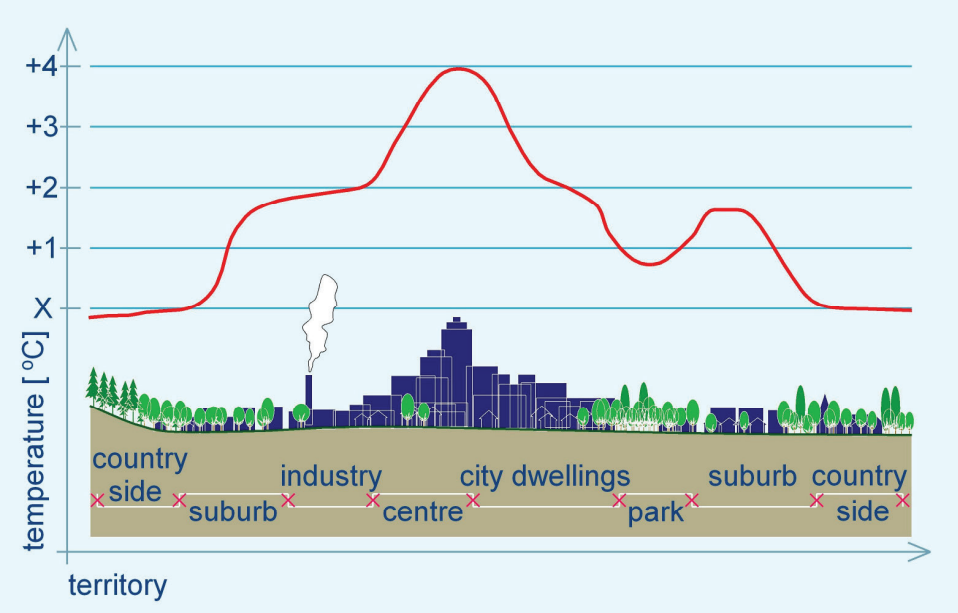


Fig. 16 **The hot climatic umbrella of an urban space**
Temperature depends on the relation between a built up area and area covered by vegetation.

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5 THE CONSEQUENCES OF A DECREASE IN THE WATER OF THE SMALL WATER CYCLE

There is nothing in the world more soft and weak than water, and yet for attacking things that are firm and strong there is nothing that can take precedence over it. Everyone in the world knows that the soft overcomes the hard and the weak the strong,but no one is able to carry it out in practice…

Lao-tzu, The Tao-te Ching, LXXVIII

The acceleration of the runoff of rainwater from a territory, the decrease in the infiltration of water into the soil and a shortage of vegetation all cause a warming to the surface of the land and a gradual change in the microclimatic conditions of the territory involved. This section is dedicated to the mechanism through which growing temperature differences cause extreme weather events even on areas of land (almost) untouched by human activity. Along with the melting of glaciers caused by global warming, the acceleration of the runoff of water from an area and the draining of land also contribute to the rising levels of the world's oceans. At the end of the chapter, we take note of the growth of global tension resulting from the deficiency of water in the small water cycle and the inability of popular theories to provide satisfactory explanations and solutions.

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5.1 The impact of the decrease in the water of the small water cycle on the growth of climate extremes

In the previous sections we spoke about how the transforming of a natural landscape into a developed one speeds up the runoff of rainwater from a territory. The intensity of the sluicing of rainwater away from the continents varies from place to place and is dependent on population density, the area and structure of the relevant agricultural and urban land, but above all on the sensitivity of its management. It's possible to say that alterations to the land always cause damage when the decrease in water needed for vegetation, evaporation and infiltration to the transformed territory is not taken into consideration. This decrease in water from the small water cycle is directly associated with the rise in extreme weather and with climate changes.

The damaging transformation of land

One particularity of the decrease in water is that however small it is, it is expressed almost immediately in the saturation of the topsoil with water, because it runs from the top parts of the soil profile, or the level of groundwater, down to the impermeable subsoil. Lowering the saturation of topsoil with water lowers the ability of the land to evaporate water and increases the share of solar energy which is immediately changed into sensible heat. The more

The spiral of the drying out of land

drained (and at the same time also hardened) the soil, the more difficult it is for it ω absorb new rainwater upon further precipitation, while built up areas automatically carry away rainwater from a territory as fast as possible. Drained soil warms up and creates thermal islands, which slightly shift precipitation activity away from their own area. Each further turn in the water cycle affected by these factors slightly decreases the volume of water in the water cycle over the relevant territory *(Fig. 17)*. With long-term observation, however, we can see a permanent and systematic decrease in the water balance of the observed territory (in the course of a century, this represents several percent). Such an incremental, but systematic reshaping of the Earth's surface has a global character. A synergetic effect emerges and microprocesses grow into macroprocesses which lead to a clearly discernible, vast and continuous deepening of regional, continental and global climatic changes.

Natural regions also affected

Original natural regions, or cooler and damper regions and territories, today represent a more stable part of the environment of the continents. Despite this fact, even they cannot avoid changes in precipitation totals and extreme displays of weather. How is this possible? Warmer air over hot and dry urban and agricultural expanses (as with completely dry territories such as semideserts and deserts) pushes precipitation activities into cooler environments formed by woods and bodies of water, or to places of higher altitude *(Fig. 18)*. The interaction of so-called dried "hot plates" (agricultural-urban land) with cooler and damper (for example, mountain) regions causes an unprecedented concentration of cloud cover over the latter regions.[39] Water from the clouds thus falls in great measure on the cooler (mountain) regions *(Fig. 19)*, where it initiates tragic flood waves. Floods then affect the lower agricultural-urban regions despite the fact that in these regions it only rains a little.

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The interaction of warm land and cool land

During the 20th century, total precipitation increased in the mountain regions of Slovakia, while in the lowland regions, it fell (*Fig. 20*). Furthermore, the time period when the majority of rain falls has become shorter and the periods of low precipitation totals have lengthened[40] (*Fig. 22, 23*). This effect of the interaction of warmer and cooler territories also functions on a smaller scale, for example, in the interaction of a city and its surroundings, as well as on a larger—even continental—scale: the level of annual rainfall in northern Europe in the 20th century, according to observations, increased by 10-40% while in the Mediterranean region it fell by 20%.[41] The occurrence of extreme heat waves and intensive showers increased over most of the landmass, and it is very likely that this trend will continue.

[39] See, for example, Roger A. Pielke Sr., "Influence of the Spatial Distribution of Vegetation and Soils on the Prediction of Cumulus Convective Rainfall," American Geophysical Union, Reviews of Geophysics, 39, 2 / May 2001, s. 151–177

[40] For analysis of these trends in Slovakia, see: *M. Kravčík, Water for the Third Millennium: Let us Not Harm Water, and It Will not Harm Us*. Košice, People and Water, NGO. ISBN 80-968031-3-1, 2000

[41] "Climate Change 2007: The Physical Science Basis – Summary for Policymakers," 10th Session of Working Group I of the IPCC, Paris, February 2007

Growth of extreme weather

The growth of extreme weather is the most destructive manifestation of the climate changes currently taking place and sharply contrasts with the long-balanced original climate conditions in the region. Breakdowns in weather are expressed through sudden changes in weather and often through the violent character of these changes. Extreme storms, torrential rains and cyclones are occurring more often, temporal and spatial differences in rainfall are changing, [42] and periods of unbearable heat and severe drought are getting longer. Regions which are the most drained are also the most affected by extreme weather events. Examples of flooding in the Danube *(Fig. 21)* but also the Morava, Tisa and Prut rivers confirm this fact. Paradoxically, the incidence of more destructive and more frequent flooding is preventing people from realizing that their country is undergoing a process of desertification. This is a great mistake. Some of the ancient stories of humanity, such as the Sumerian-Akkadian *Epic of Gilgamesh* or the Old Testament of the Bible, come from those countries of the Fertile Crescent which underwent desertification, and reflect the theme of a deluged world. This reflection must have had its basis in real experience.

Dry soil helps runoff

It is also paradoxical that soil partially saturated with water is capable of better absorbing more water than dried out soil. If precipitation falls on compacted and dried out soil, infiltration to deeper layers occurs only after a period of ten minutes or more. In the first minutes, however, the soil behaves like an impermeable surface. During extreme rains, there is a rapid runoff and concentration of rainwater to river beds. This same rainfall, which would be easily absorbed in land healthily saturated with water, in a drained land changes streams and creeks into fast-flowing rivers, causing extreme flow rates and flood situations. This means that a surface with no ability to evaporate water creates not only favorable conditions for the origin of extreme weather, but also exacerbates the effects of such weather.

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The transformation of land into desert

Long-term drought initiates a spiral of desertification, namely the transformation of land into semidesert or desert. Within the context of this publication, deserts and semideserts can be understood as fully dried-out parts of a continent with minimal or no circulation whatsoever of water in the small water cycle. Even conventional natural landscape with vegetation and sufficient water can turn into semidesert or desert through the destruction, by human activity, of the small water cycle over the territory (this can, for example, come about through the burden of too much urban development, too much intensive farming or the excessive raising of cattle and consequent overgrazing).[43] This fate possibly afflicted even the coastal regions of hundreds of towns in northern Africa, which was once the granary of the Roman Empire. This gradual process of transforming once natural landscape with vegetation and sufficient water resources into completely

[42] P. Faško, J. Pecho, K. Mikulová, P. Šťastný, "Instances of high daily, monthly and seasonal amounts of atmospheric precipitaion in East Slovakia at the end of the 20th century and the beginning of the 21st century in the context of historical data." Collected contributions from the international conference Protection from Flooding. Podbanské, 2006, pgs. 153 –158

[43] Richard van Noorden , More plants make more rain, Satellite observations suggest vegetation encourages rainfall in Africa; www.nature.com, September 25, 2006

arid land can also be called the conversion of a land into semidesert or, in extreme cases, desert.

Consequences of extreme manifestations of weather

The consequences of extreme manifestations of weather are frequent forest fires, floods, degradation and erosion of soil, landslides and various ecological and other catastrophes *(Fig. 24 and 25*), threatening the life and health of people and causing vast economic damage. With the recurrence of these manifestations of weather comes a gradual and permanent lowering of the competitiveness of the land, which is evident in practical terms by, for example, the fact that insurance companies refuse to insure property in such affected localities and the banking sector limits loans and guarantees for projects on these territories. Floods, drought, tornadoes and other extreme weather events are a syndrome of land which has been exploited and inhabited by human beings with today's approach to surface water and rainwater.

5.2 The impact of the decrease in the water of the small water cycle on rising ocean levels

Speed of rising ocean levels

In the past, when the water cycle was still unknown, people posited the question of how it was possible that the levels of the seas and oceans did not rise when all the rivers in the world constantly flowed into them. Today, when the water cycle is known and hydrological measurements show that the levels of the seas and oceans are rising, it's as if it hasn't occurred to anyone that the reason for this phenomenon might also be in the rivers that flow into them *(Fig. 26).* The rising levels of the oceans are attributed to the melting of icebergs because of global warming. Individual information sources diverge regarding the degree of the rise of ocean levels during the 20th century, but the majority suggest an amount of 10 centimetres or more, meaning an average of about 1 millimetre per year. At the start of the 20th century, the speed of rising levels was in all probability less than 1 mm per year; at the end of the 20th century, however, it was significantly more than 1 mm per year. At present, the rate at which the seas are rising is up to 2.4 mm per year.[44]

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Water stored in icebergs and glaciers

The process of monitoring icebergs and glaciers is a logical one given the fact they contain so much water, water contained in permanent ice and snow making up about 1.7% of the world's stocks of water and nearly 70% of the world's stocks of fresh water. The extent of glaciation throughout history has logically corresponded with temperatures on Earth, this fact also being responsible for fluctuations in ocean levels. The level of the world's ocean at the peak of the last Ice Age, 20,000 years ago, was about 125 meters lower than it is today. Most ice today can be found in Antarctica, accounting for nearly 90% of the world's ice that is stored on land in icebergs. The ice in Greenland accounts for about 10%. The

[44] Source: NASA, http://sealevel.jpl.nasa.gov/gallery/presentations/public-presentation/03-GP-science-apps.ppt#19

melting of all glaciers found in Antarctica and Greenland would, according ω calculations, cause the world's oceans to rise by 60-80 meters, while the melting of icebergs on all other lands would contribute only about half a meter to such a rise. The melting of ice of non-terrestrial origin (for instance in the Arctic Ocean) which floats on the ocean, on the contrary, does not increase sea levels. The Archimedian principle applies here: just as in the case of a free-floating ice cube in a cup full of liquid.

Balance of icebergs

For the stability of glaciers the same thing is important as for the stability of hydrological ratios within a country: a stable water balance. In the case of glaciers this involves a balance between accumulation, particularly through the impact of falling snow, and reduction, particularly through the influence of melting and sublimation. Unfortunately, a more complex glacial balance is studied in (smaller) glaciers away from the more inaccessible territories of Greenland and Antarctica. The majority of these actually record larger or smaller decreases in volume. As for Greenland and Antarctica, the images the public have of them are formed especially under the influence of popular and emotional scenes promoted in the media showing icesheets breaking off and shattering in areas around the oceans. Such footage is usually made from the edges of ice-shelves which are most easily accessible to the media and to expeditionary parties. Often, though, the reason for ice-shelves breaking off is interpreted incorrectly. The breaking off of icesheets from the edges of continental glaciers directly extending into the oceans and seas and the cracking of non-terrestrial icebergs are often mechanical in origin, e.g. with constant fluctuations in (rising) sea levels caused by tidal ebb and flow contributing to this process.

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Terrestrial glaciers

Research conducted on glaciers in Antarctica and Greenland, however, show that inland the thickness of the ice is, in fact, permanently growing, because in the environment of permafrost snow piles up and never melts. Data about the balance of glaciers in Antarctica and in Greenland are not unambiguous. In recent times, however, Greenland looks to show a decrease in total balance of ice.[45] It is logical that the present trend of warming continents will lead to a rapid decrease, for example, in glaciers in the Alps, which are surrounded by the "hot plates" of Europe's industrial regions. Glacier water in this case becomes a component of runoff and ends up in the seas, thus contributing (partially) to their rising levels.

Drainage of land and the rise of ocean levels

A further logical explanation of the rising levels of the oceans, besides the increase of runoff from glaciers, is the increase in the runoff of water from land of non-glacial origin and its subsequent storing in the oceans. While the runoff from melting icebergs is almost unanimously accepted as an explanation for rising ocean levels, any explanation that points to a decrease in the amount of water on land is met with great prejudice and intellectual opposition. And yet a small, hardly noticeable increase of roughly 1% in the annual

[45] See, for example, "Greenland's Ice Melt Grew by 250 Percent, Satellites Show," *National Geographic*, September 20, 2006, http://news.nationalgeographic.com/news/2006/09/060920-greenland-ice.html

runoff to the oceans (in comparison the equilibrium balance) through rivers would, to the detriment of groundwater, soil moistness and the growth of vegetation, represent a volume of water that over 100 years would increase the volume of the oceans by about 36,146 km³ of water (ignoring the increased evaporation from ocean levels as a result of rising temperatures, thermal expansion of water, etc.), an increase which would account for a rise in their levels of about 10 cm.

Missing water on land

Levels may have increased by even more centimeters during the cultural history of humanity thanks to the water which numerous civilizations lost from their own territory: water from the European climax forest logged over the past thousand years or water which in the time of the Roman Empire irrigated cities and fields in a coastal strip of Northern Africa. If someone denies that this water is in the oceans, then he should be able to say where else it actually is. One thing is certain: in the overwhelming majority of cases the amount of water on land "civilized" by humanity is not the same as it once was. At the moment we don't know what share of water involved in the rise in ocean levels is of glacial and non-glacial origin. It is thus a responsibility of the scientific community to start dealing more seriously with the question of land water of non-glacial origin and its effect on rising sea levels. It is, after all, water missing from land and not from icebergs which we feel the absence of more.

5.3 The impact of the decrease in the water of the small water cycle on the rise in global tension

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Slovakia as illustrative of the problems

During the 20th century the annual average air temperature in Slovakia rose by about 1.1 °C (even more in winter). Meanwhile, the average annual sum of precipitation fell by 5.6% (in the southern plains the fall was more than 10%; in the mountainous north there was a rise of 3% during the century). Also, a significant decline in relative air humidity was recorded (up to 5%). Characteristics of potential and actual evaporation, soil moistness, global radiation and the radiation balance all confirm that south Slovakia is gradually drying out (potential evapotranspiration grows and soil moistness falls).[46] Spatial concentration in the fall of precipitation is accompanied by a concentration in the time division of this precipitation, i.e. periods of "drought" are lengthening and the timeframe in which the majority of precipitation falls is getting shorter. Flood waves arise, extending into the warmed lowland regions where it almost never rains. Little Slovakia, even though it in no way ranks among the most problematic countries in the world in terms of the problems outlined here and the subsequent damage they cause, can be seen as an example illustrating the typical hydrological problems of the modern world.

[46] "Fourth National Report of the SR on climate change and the Report on achieving progress for fulfilling of the Kyoto Protocol." Slovak Republic, Ministry of the Environment of the SR, Slovak Hydrometeorological Institute, Bratislava, 2005

The prognosis of further worsening of the climate

The United Nations' predictions for the climate and circulation of the world's water in the 21st century are at best worrying and at worst catastrophic: "Global warming may already be with us, but the much greater warming forecast for the 21st century will produce vast changes in evaporation and precipitation, allied to a more unpredictable hydrological cycle. Higher air temperatures will increase evaporation from the world's oceans, intensifying the water cycle. They will also mean faster evaporation of water from land, so that less rainfall reaches rivers. These changes will be accompanied by new rainfall patterns and more extreme weather events, including floods and droughts."[47] This climate shift in which the influence of the large water cycle starts to dominate the small water cycle is just one of the UN's gallery of horrors. Along with predictions that dry regions of the world will in the future be even drier and wet regions still wetter, their list of threats ends with the statement that in the unpredictable world of the future, one thing which is predictable is a growth in the number of countries with water shortages.

Consumption and the need for water

Direct personal consumption of water for drinking and hygiene is relatively small and can be counted in dozens of litres per person per day. The amount of water needed for turning out the daily ration of food per person, however, can be measured in thousands of litres and is increasing. The consumption of water in industry in the 20th century also had a tendency to grow. The availability of 1700 m^3 water per person annually is defined as the basic level for satisfying the combined needs of people, agriculture, industry and the environment. In view of this, we can consider a volume between 1700 and 1000 m^3 of water available per person annually as a state of stress and a volume of under 1000 m^3 as an insufficient amount of water. Countries with less than 500 m^3 of water per person annually are considered to be countries with a catastrophic shortage of water. Such countries are, for example, Somalia or the territory of Palestine, which have access to only about 320 m^3 per person annually. At present an estimated 700 million people in 43 countries around the world live in a state of water stress. These are particularly centered in the Middle East and in Sub-Saharan Africa.

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Prognosis of future water needs

With the current tendency of cities to grow, a growth in both personal and industrial consumption of water can be anticipated. At the same time a growth in the need for water for the production of food in the poorest developing countries can also be anticipated. Those countries with high population growth and low financial capital, already using more than 80% of their water on agriculture, will be severely affected by the increase in extreme weather. We can expect a loss of livelihood for millions of small farmers and a growth in their dependence on food from developed countries. The need for water sources is growing because the number of such sources, their volume and their quality, are all getting lower. In the face of the growing demands of people, agriculture and industry, it is usually the environment which pays, and if no change occurs, the environment will continue to pay the biggest price. According to a UN report, the number of people living in a state of water stress will have probably increased by the year 2025 to more than 3 billion, with 14 countries

[47] *Human Development Report 2006*. Published for the United Nations Development Programme (UNDP) – Beyond scarcity: Power, poverty and the global water crisis

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having moved from the category of "water-stressed" to the category of "water-insufficient".[48]

Absence of solutions

Some indications of the coming shortage of water are already visible today. Reports are coming from different corners of the world about catastrophic droughts, desertification or salination of the soil over vast areas, about regions with a rapid decline in groundwater levels or rivers and lakes drying up or the expansion of deserts. Increases in average or seasonal temperatures can have serious consequences on the physical and psychological health of people and bring about problems with adaptation. The scenario of adaptation is, in fact, almost the only one which international organizations have so far been able to offer the world's public. This scenario, however, merely documents a sense of resignation and admission of powerlessness in dealing with the problem. The shift of a huge number of people, populations and industry to cooler regions is also practically impossible because it would be accompanied by the irreplaceable loss of the cultural and natural heritage of the abandoned population centers and lands.

War or water?

In this atmosphere of stress, a growing number of authors are repeating the words of the previous Secretary General of the U.N., Boutros Boutros-Ghali, that the wars of the 21st century will be wars over water. Water has already begun being used as a de facto weapon of political pressure between states, last but not least on the territory of what used to be Mesopotamia. The Turkish GAP project (a development project for southeast Anatolia) is counting on the construction of 21 dams and 19 hydroelectric plants on the Euphrates and Tigris rivers. This massive exploitation of their waters and the waters from their tributaries for intensive agriculture over gigantic areas should increase the number and volume of harvests each year, the agricultural products of which will be largely sold as exports. But Syria and Iraq, lying further downstream, both seriously fear the possibility of being blackmailed and threatened with lower amounts (as has already happened) and lower quality (higher salinity) of water. And the situation is not helped by the statements of some Turkish representatives who say that just as it wouldn't occur to them to make claims on crude oil whose sources are in Iraq, so Iraq can make no claims on water which originates in Turkey.

Pessimistic views

Pessimists on the question of wars over water recall the account from the year 2450 before Christ about just such a war between two Sumerian city states, Lagash and Umma, in the lower Mesopotamian valley. Optimists point to the fact that even though water, as almost everything in the world, has often been the subject of internal battles and armed conflicts, except for the case mentioned, there are no other known interstate armed conflicts in history in which supplies of water would be considered a strategic and not "merely" a tactical goal. It's good to be an optimist, even though it is often cynically argued that an optimist is merely a badly informed pessimist, but in the case of potential supplies of water in the 21st century both groups are inclined to agree that the prospects are gloomy, with more dangers on the horizon than promised solutions.

[48] ibid.

***Tab.6* Possible indicators of the reasons and the consequences of a decrease in the water of the small water cycle**

– trend in fall of minimal flow rates in watercourses – trend in growth of extreme flow rates (flood waves) in watercourses
– trend in long-term decrease of precipitation in a drained area, – space and time changes in distribution of precipitation in an area – trend in growth of extreme precipitation and storm activities
– trend in long-term rise in ocean levels – trend in long-term decline in groundwater levels
– trend in fall of soil moistness – trend in fall in volume of groundwater reserves – expanding of drained territories, semideserts and deserts
– growth in the number of populations with worsening access to drinking and utility water – fall in the biodiversity of a territory – rise in ecosystem imbalances
– overheated territory and expanding areas of "hot urban and agricultural plates" – trend in growth in temperature differences between hot plates and preserved natural areas with vegetation cover – trend in expanding of built-up areas, impermeable surfaces, surface coverings of buildings and other built-up spaces
– shortening the length of watercourses (by alteration of flows, cutting off tributaries) – trend in fall in the percentage of bodies of water (lakes, ponds and other water surfaces within villages or outside of villages) and wetland areas (marshlands) from the total area of a country – trend in growth of drained areas (by buildings and hard surfaces) –trend in fall of forested areas
– growth in the number of insurance events and the volume of paid-out insurance for natural disasters and for damages caused by extreme weather and their results

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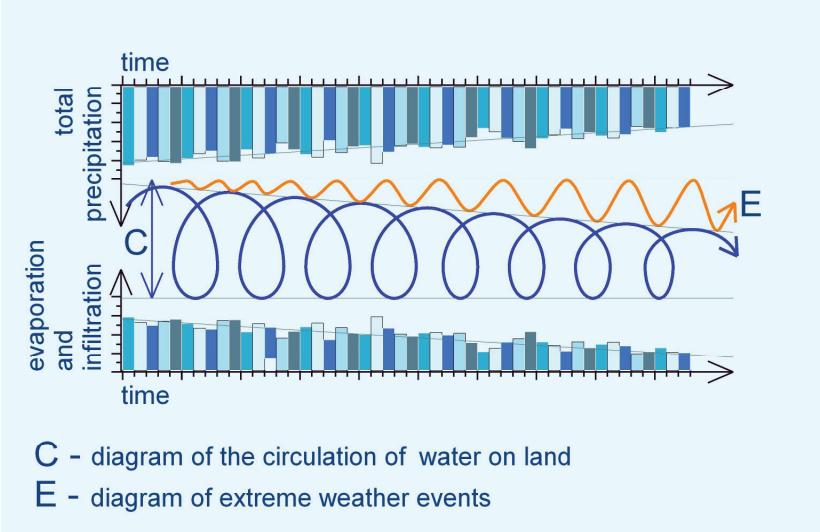


***Fig. 17* The growth of extreme weather with the decrease of water in the small water cycle**

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With a decrease of water in the system, temperature differences arise which cause different types of extreme weather.

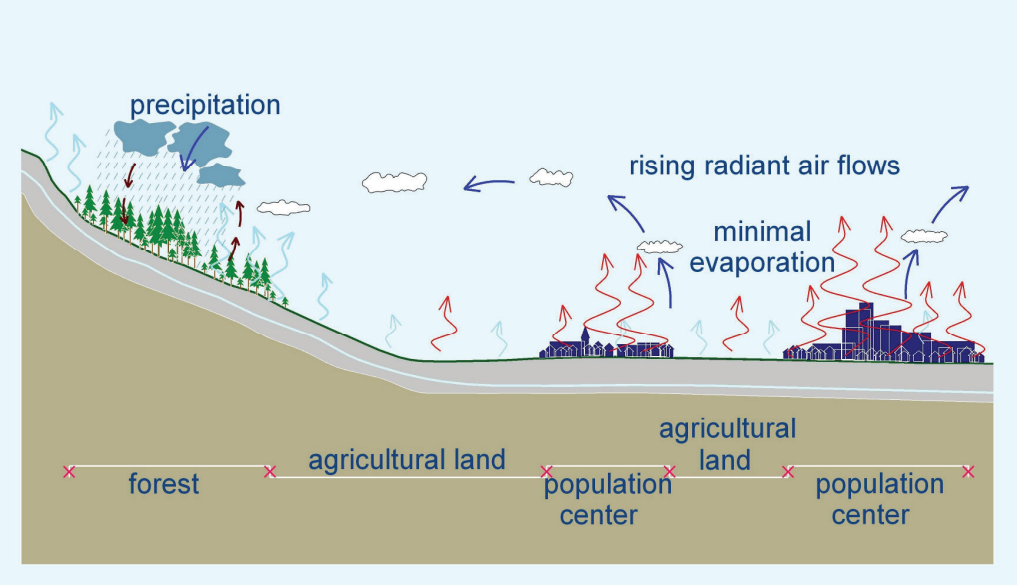


Fig. 18 **The impact of the transformation of land on the destruction of small water cycles**
Rising radiant flows push clouds to cooler environments.

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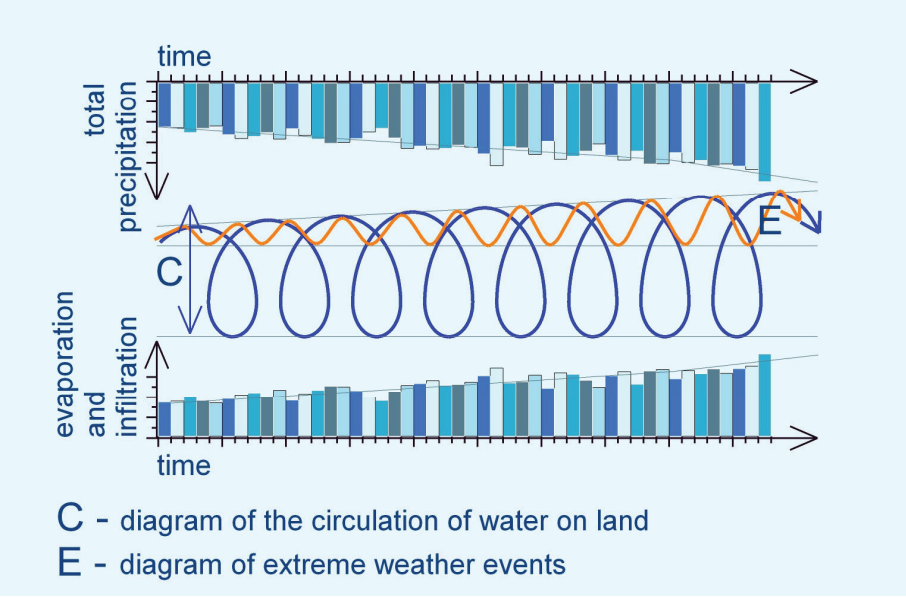


Fig. 19 **The growth of weather extremes in damper and cooler environments – the concentration of precipitation forcing it from dryer lands**

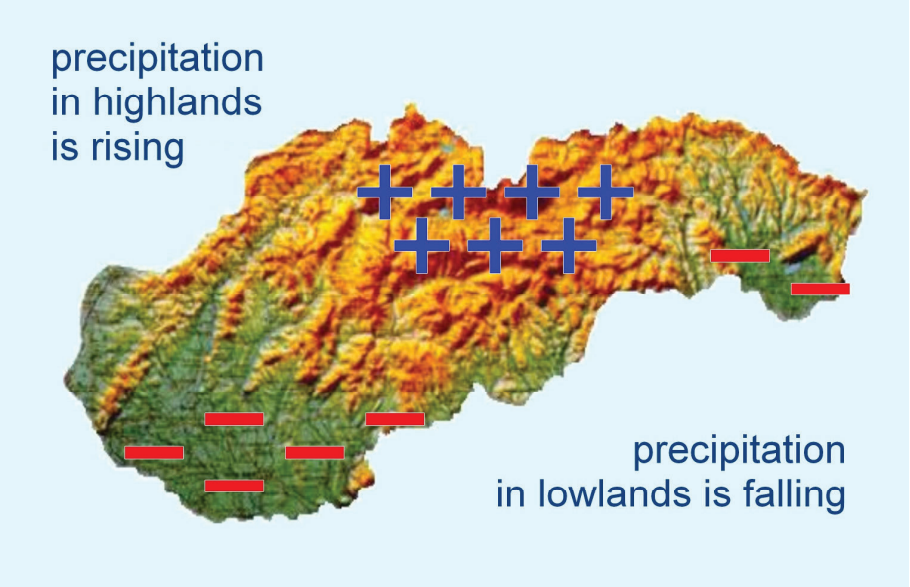


Fig. 20 **The growth of precipitation in mountainous northern regions and the decrease of precipitation in southern lowlands – Slovakia used as an example**

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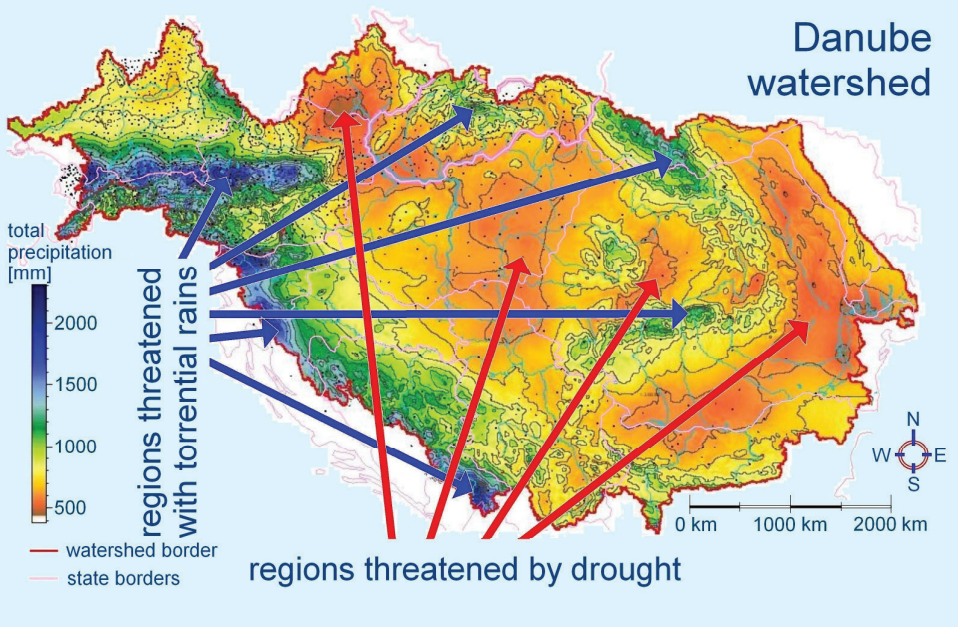


Fig. 21 **The rise in precipitation in mountainous regions and the decrease of precipitation lowlands – Danube watershed**

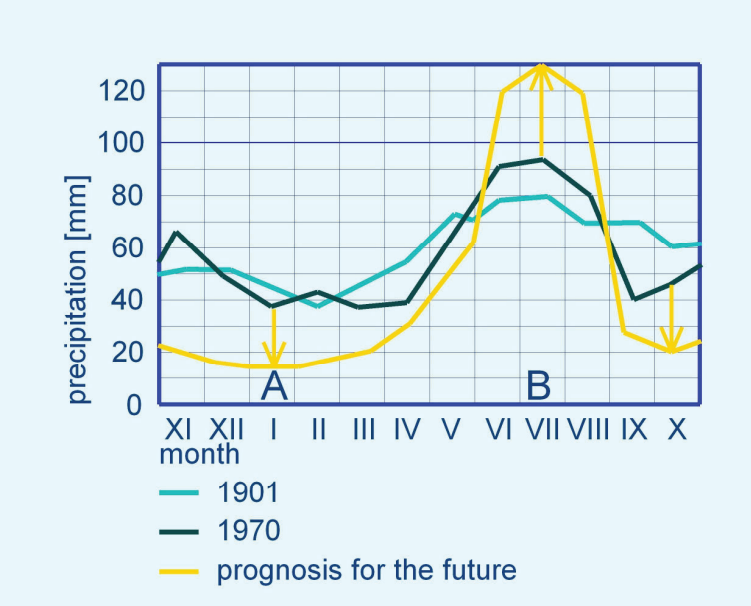


Fig. 22 **Precipitation trends in Slovakia**
Periods of "drought" are lengthening (A) and the time period in which most precipitation falls is getting shorter (B).

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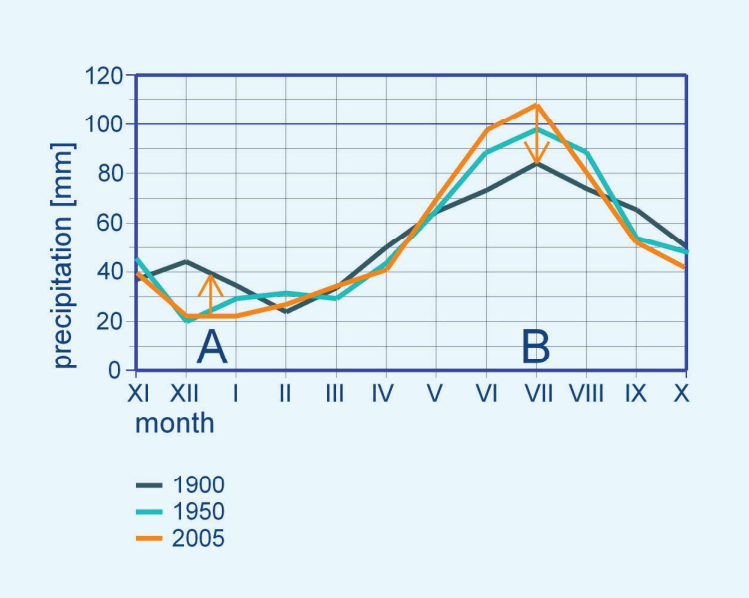


Fig. 23 **Average annual precipitation totals in Prešov**
Resembles the average trend throughout Slovakia.

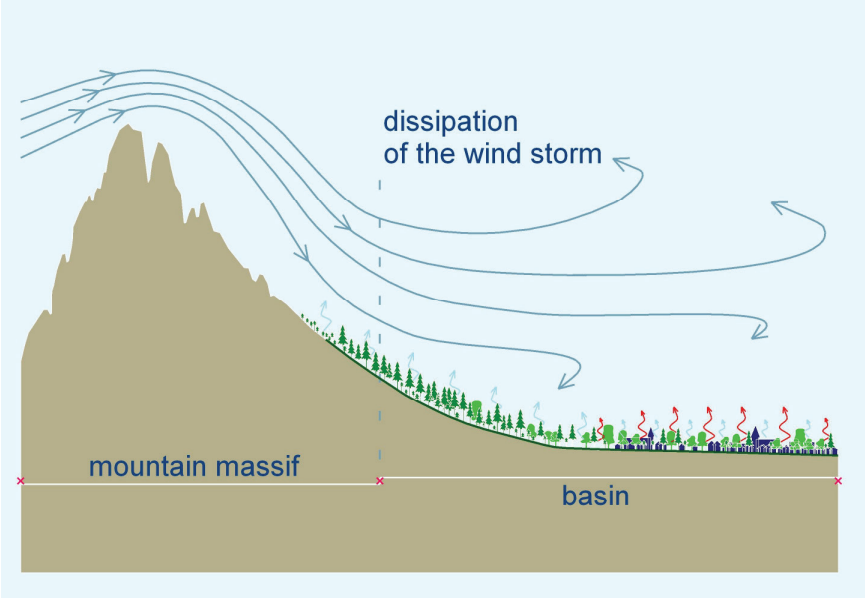


Fig. 24 **The incursion of cold air to the High Tatras regions (the Tatra bora) - the assumed state around the year 1800**
The conditions of the land under the mountains allowed for the gentle dissipation of the currents.

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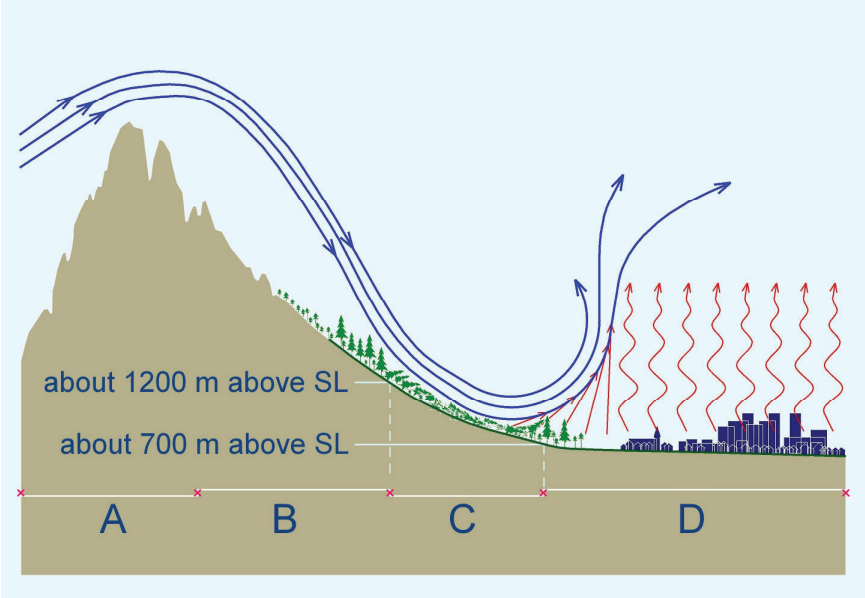


Fig. 25 **Wind storm in the High Tatra mountains, Slovakia, November 19, 2004**
Radiant flows of warmed currents from agricultural-urban areas (zone D) accelerated air currents with the rapidly falling cold front through the ridge of the High Tatra mountains: v(A) 150 – 200 km/h, v(B) < 100 km/h; v(C) 200 – 250 km/h, v(D) < 150 km/h.

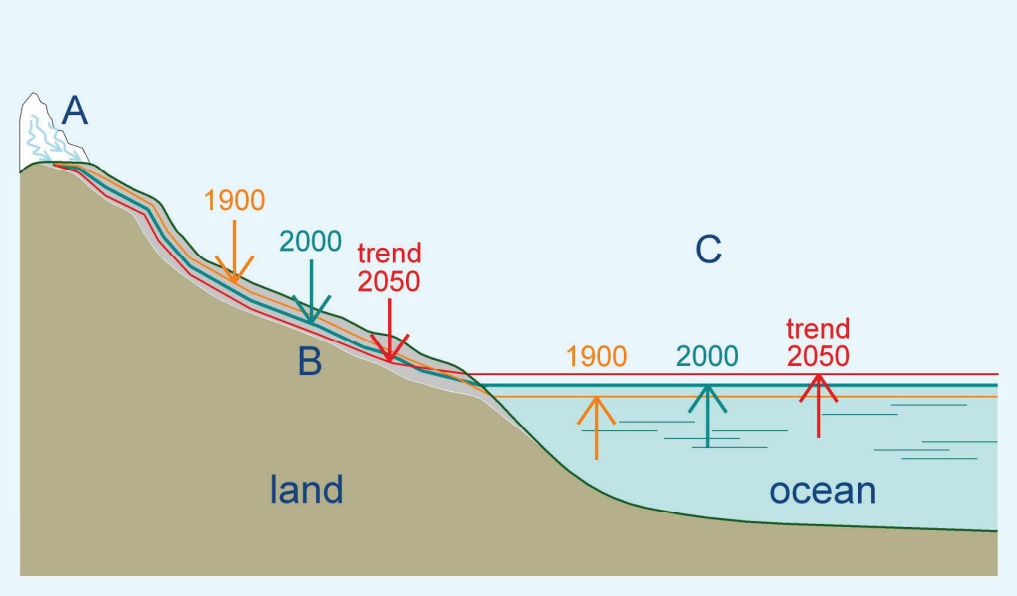


Fig. 26 **The impact of glaciers melting (A) and the decline in the reserves of water on the continents (B) on rising ocean levels (C)**

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6 THE OLD AND THE NEW WATER PARADIGM

Hath the rain a father? or who hath begotten the drops of dew?

The Bible, Job 38:28

For in the wilderness shall waters break out, and streams in the desert, and the parched ground shall become a pool,and the thirsty land springs of water...

The Bible, Isaiah 35:6-7

Philosophers, historians and thinkers diverge in many things in regard to the modern age in Europe, but concur in the fact that it has been characterized by a strong emphasis on rational thinking and scientific knowledge. The reality of the problems associated with the lack of what until recently seemed to be a ubiquitous, commonplace substance—water—has challenged this rather self-important and arrogant modern age approach. From a careful critique of the old perception of the water question, we will present in this chapter a new attitude to water which respects its value and function in the environment much more.

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6.1 The old water paradigm

Faith in science and progress

Above all, the modern age is characterized by the conviction that human understanding can solve all our problems and that science and technology inevitably lead to continuous progress and to an ever happier and better world. Two world wars and many other wars in the 20th century, as well as the Holocaust, the atomic bomb, the emergence of totalitarian regimes, the share of science in the development of destructive weapons, industrial ecological catastrophes and many other factors have, however, undermined this faith in science and in inevitable progress to the point that many thinkers even consider the years 1965-1975 as the beginning of a skeptical, post-modern period in which some people believe that evolution can also go backwards, or move in cycles or spirals.

Humanity changes the course of nature

We can clearly see a reflection of the originally Biblical and, in the 20th century, a strongly secularized mind of the type: "man, lord of all creatures, is changing the course of nature" in the management of water. Hardly anyone in countries possessing sufficient water supplies ever considered the possibility of a future shortage of water. Occasional voices calling for responsibility in the management of water were often lost in the optimism founded on the seeming omnipotence of scientific and technological solutions. Engineering solutions were able to carry water over great distances when necessary.

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Great waterworks, which aside from the usual functions of waterworks, also had energy-generating functions and served as anti-flood protection, were built for the accumulation of water. Water in the land and the soil was seen more of a handicap, so wetlands were drained, river flows straightened and meanders and dead-end tributaries removed in order to gain more agricultural land. Watercourses were channeled so that water could be sluiced away as fast as possible. Boundaries were plowed and hydromorphic land elements were removed in order to obtain the largest contiguous areas, which seemed at the time, to be a synonym for modern mass-production. The drainage of land was aimed at expanding areas, increasing profits from certain xerophilous cereals and achieving self-sufficiency in the production of bread. If necessary, there was plenty of surface water available for irrigation.

The seeming victory over nature

Rainwater in cities suffered the same fate as water in the countryside. Standing water or mud in cities were considered as signs of a lower culture. Therefore, as many open areas as possible were covered in concrete, and rainwater that fell on them and on roofs was carried away by sewers to the nearest stream. All water for residents was generously supplied as drinking water, without any consideration of the fact that only a small part of it would actually be used for consumption. Water was utilized once only and after purification, sent to the seas. The supplying of water from ducts and the sewage systems of cities and villages were certainly and rightfully given credit for their successful part in the suppressing of many infectious diseases, hence the strategic goal to expand these facilities to as many of the population as possible. This way of perceiving and handling water enjoyed great successes and for developing countries became a model of order and civilization to achieve, expanding particularly in countries with a relatively abundant supply of water.

The first great failures

The "old paradigm" is more tradition and actual practice than a unified, articulated theory. Despite this fact, as a background of thought it really exists and is reflected in textbooks and in practice. It once promised peace, safety and prosperity. With the passage of time, however, we can now say that this promise has not been fulfilled. If we were to search for a textbook example of the failure of engineering approaches to the management of water in the modern age, we would probably find the most drastic example in the former Soviet Union. The Communist regime in that country fancied itself, in a certain sense, to be the perfect embodiment of "rationalism" of the modern age, and the catastrophe of the inland Aral Sea, even though not all aspects of it are typical, can be considered an epitome of the arrogant handling of water in the second half of the 20th century. Some 3500 years of inhabited fertile land between the water-rich Amu Darya and Syr Darya rivers ended in ecological catastrophe after just 30 years of profligate plundering of water for irrigation: the partial drying out of the sea and the rivers, the destruction of their ecosystems, the rapid lowering of biodiversity (fish no longer live in the Aral Sea) and the total desertification of the region culminating in winds now spreading salt and pesticides from the bare seafloor all across the region. For the most part, the dried up Aral Sea has stopped moderating the differences of temperatures between winter and summer. With the growth of temperature differences, the speed of the winds has increased, as has the intensity of local dust storms.

The degradation of the environment has gone hand in hand with the economic decline of the area and a long list of related health problems amongst approximately 3 million inhabitants in the immediate area and 35 million inhabitants in the broader regions around the sea.

The cracks warning of the fall of a construction

But the insensitive handling with water is not only a problem of Central Asia. Here in Europe we know it more as human activity in the areas of forest and water management and agricultural and urban zones, activity which derives from the philosophy of getting rid of water from watersheds as quickly as possible. We've already mentioned some of its consequences in this publication. Lowering the ability of watersheds to retain water has the effect of emptying the small water cycle in nature, causing a decline in soil moisture and a fall in groundwater levels, as well as a warming of the whole local area. In mountains and foothill regions, fields without natural barriers to prevent the runoff of rainwater are an ideal setting for soil erosion and the occurrence of local flooding. Other negative results are the rapid aggradation of reservoirs, the lowering of groundwater reserves, a fall in the minimal flow rates in rainwater deficit periods and the growing trend in the culmination of flood flow rates. Water managers no longer even try to disguise the fact that if the extreme claims on the state budget the measures they have suggested were actually provided, the situation would not improve, or would only improve only a little. More and more our cities are being converted into dried-up "hot islands" where people suffer allergies to dust and pollen and where, in the summer heat, elderly people die of heart attacks. Cities, whose locations were once selected with an eye on their rich sources of water, now go to extreme lengths to transport and purify water from great distances and at the same time as sluicing away all the rainwater that falls on their own heads.

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The growth of weather extremes

Meteorological observations demonstrate that 11 of the past 12 years (1995-2006) are among the 12 warmest years on record in terms of the average temperature of the Earth's surface. Global warming, according to the main current of contemporary science, will not stop, however, even centuries after the elimination of its apparent causes, these being emissions of CO_2 and other greenhouse gases from human activity, gases which cause an increase in the effects of solar radiation in the atmosphere. And associated with increasing temperatures of the atmosphere and the oceans is a proportionate increase in the content of water vapor in the atmosphere (for each degree Celsius of this increase, the air can theoretically absorb about 7% more water vapor). This causes numerous long-lasting climatic changes of regional and continental significance. The occurrence of extreme heat waves and intensive showers increased over most of the landmass, and it is very likely that this trend will continue.[49] Serious dry spells (droughts) have affected vast regions of Europe, Asia, Canada, western and southern Africa and eastern Australia. The number of heavy floods (100-200 year floods) also increased significantly during the second half of the 20th century.[50]

[49] "Climate Change 2007: The Physical Science Basis – Summary for Policymakers." 10th Session of Working Group I of the IPCC, Paris, February 2007
[50] CRS Report for Congress, *Climate Change: Science and Policy Implications*. Order Code RL33849,

Global warming as the chief enemy

The scientific knowledge on which the modern age once relied nowadays spreads more fear of the future than hope for solutions. Contemporary science blames global warming for most of the above mentioned, and many other, negative trends. The growing extremes of climate are, in its eyes, a subset, if not a direct synonym, of global warming, which will likely intensify in this century. And yet the period between the 9th and 13th century, which was markedly warmer than the 20th century, appears to have been the best in Europe from today's climatic-historical point of view. Vineyards were cultivated on a commercial basis 300 to 500 kilometers north of the limits of their cultivation in the 20th century, and the Vikings settled Greenland. This was above all, however, a period of unprecedented climatic stability, only occasionally disrupted by extreme weather events. This climatic "golden age" allowed for a great economic boom, the building of cathedrals as well as further expansion of agriculture with accompanying deforestation. On the other hand, the cooling period we long for today brought Europe, in the time of its Little Ice Age (with certain departures, from the 14th to the mid-19th century), high instability in the weather accompanied by poor harvests, poverty, famine and other misfortunes.[51] The growth in climatic extremes are thus not identical with global warming, nor is the stabilization of the climate necessarily dependent on its cooling.

Trends in scientific research

35-8 *Cont'd*

It is astounding, then, that while scientific publications and conferences emphasize the impacts of global warming on the circulation of water in nature, almost all of them are totally silent on the influence the water cycle has on climatic changes. The fascination with CO_2 is so great, though, that it even dominates the relatively small number of scientific articles which are concerned with the relationship between vegetation and the climate. The mechanism by which heat in water vapor is given off in the upper part of the troposphere is, like the effects of clouds on the thermal balance of the Earth, under-researched.[52] What excites the interest of scientists is the albedo, i.e. the proportion of reflected solar radiation in relation to the total falling on Earth. Here vegetation falls into disfavor, because it absorbs more (reflects less) solar radiation than soil cleared of vegetation.[53] It's logical that, given the current state of knowledge, many scientists are missing among those who argue for the watering and forestation of continents, even though they rarely speak openly about this. They don't, however, have another formula for rescuing the planet, aside from the already mentioned prospect of lowering the levels of CO_2 in the atmosphere (by lowering its production in industry, not its absorption by vegetation). No wonder that in this desperate situation scientists and politicians are orienting their efforts more towards methods of adapting to the "inevitable" negative changes than towards averting them.

January 25, 2007

[51] Brian Fagan, The Little Ice Age - How Climate Made History, 1300-1850, Academia, Prague, 2007
[52] Wigley, T. M. L., V. Ramaswamy, J. R. Christy, J. R. Lanzante, C. A. Mears, B. D. Santer, C. K. Folland, Temperature Trends in the Lower Atmosphere – Understanding and Reconciling Differences, Executive Summary, A Report by the Climate Change Science Program and the Subcommittee on Global Change Research, 2006
[53] See, for example, "Trees to Offset the Carbon Footprint?" Lawrence Livermore National Laboratory, April 10, 2007, http://www.llnl.gov/PAO/news/news_releases/2007/NR-07-04-03.html

The need for a new paradigm

Not only in the modern age, but probably throughout all of history, people in regions abundant in water have felt as if its abundance would never come to an end. Even just a few decades ago, a shortage of water in a country like Slovakia was as hard to imagine as a sudden change in the climate. In the 20th century, however, humanity reached a degree of development that allowed it, knowingly or unknowingly, to change the water cycle to an unprecedented extent, and these changes, caused by human activities (along with many other factors) have clearly occurred and are still occurring. The old paradigm, which considered water as an eternally renewable resource, has failed, the truth being that water is only a renewable resource as long as the water cycle is functional. A new paradigm is therefore needed which will carefully protect the fragile equilibrium of this water cycle.

6.2 The new water paradigm

Merits of the old paradigm

That which we have introduced in the previous chapter is not meant to be an absolute denial of everything that the old water paradigm propagated and achieved. The truth is otherwise. We know that in the history of ideas, systems that have attempted to negate everything that preceded them have turned out badly. We also know that even such a great scientist as Sir Isaac Newton once modestly stated: "If I have seen further it is only by standing on the shoulders of giants." The old water paradigm achieved exceptional effectiveness in solving immediate and particular problems of water. If it was necessary, it managed to retain water, transport it great distances, use it, purify it and carry it away. The old water paradigm is still successfully fulfilling these tasks today and would undoubtedly continue to do so even more successfully in the future. Just as Christians in the first centuries used stones from pagan temples to build their own temples, so will the emerging new water paradigm utilize many of the old achievements. The new water paradigm, however, must utilize them in a new spirit.

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Learning from mistakes

The new water paradigm must learn from the mistakes of the old paradigm. In our opinion, among the biggest mistakes of the old paradigm is that water was perceived as an isolated entity, water's interaction in the framework of the whole ecosystem being neglected, particularly water hidden from view (water in soil, in the atmosphere, in plants). The paradigm also neglected the synergic effect of introducing even minor measures to regulate the state and circulation of water in a country. Readers who did not begin reading this publication at this chapter but who have also read the previous chapters, know what kind of measures and what impacts we have in mind. The old paradigm considers water as a fixed given renewable resource which is subordinate to deviations in the global climate, or is even its "toy," but which itself has no noticeable influence on the global climate. The circulation of water, according to the old water paradigm, was rarely influenced by human activities and if it were, then only marginally and indirectly, via the influence of other parameters which supposedly had a larger impact on the global climate

than water. The blindness of the old paradigm to climatic impacts of water management measures is furthermore crowned by its ignorance and denial of the importance of the small water cycle. Given the current level (lack) of knowledge, we can hardly wonder that water managers and all other people who come into contact with water issues, are neglecting the importance of the water balance on all levels, manage it badly and are especially destructive in their treatment of the small water cycle.

Only a permanent balance is sustainable

In the new water paradigm, the water balance at all levels—on the territory of individual communities, within cities, in forests, on agricultural land—is the central theme. The new water paradigm warns that unlike the issue of global warming, the issue of the drying of the continents, or substantial parts of them, is receiving very little public or scientific attention. The drying and subsequent warming of the continents causes an acceleration of natural processes following a certain specific pattern and interdependance.[54] The drying is caused by urbanization with its rapid sluicing away of rainwater to the seas and oceans, by agricultural activities and by the deforestation of ever larger areas of the Earth's surface. This drying creates "hot plates" with a complete chain reaction: the warming of continents, the destabilization of the water cycle and an increase in extreme weather. This is causing extensive damage to both economies and civilization. That's why calculating, systematic monitoring, guarding and maintaining equilibrium in water balances is becoming imperative even on the city level. Thus far in its history, however, mankind has not even considered this condition for sustainable economic and civilizational growth.

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Replenishing the deficit in the balance

The new paradigm, though, not only calculates the balance of water but also offers a solution for making up the deficit. We can return the lost water back to the continents by keeping rainwater on a massive scale in the places where it falls, particularly in those areas where the influence of human activity is causing a drying out. Just as the impact of human activities (as their unplanned secondary effect) can lead to a breakdown in the small water cycle, so concerted human activity can contribute to its renewal over land as well as to securing long-term stability in the water balance of a territory with sufficient water resources. If the current method of managing rainwater and surface water on land is turned around and the conservation of rainwater and surface water on land is ensured by a system of all-embracing measures for increasing the water-holding ability of an entire watershed (which are often identical with anti-erosion measures); and if only the surplus surface water is sluiced away from an area, then with each turn of the cycle there will be recovery of the small water cycle, the reserves of groundwater will gradually improve, the volume of precipitation will increase, and extreme weather events will decrease.

The principle of water cycle saturation

Mankind has used different means of rainwater harvesting and water-conservation over the millennia in order to obtain sufficient water resources. Our knowledge of their broader impact on the stabilizing of

[54] See, for example, "A new paradigm for assessing the role of agriculture in the climate system and in climate change," Roger A. Pielke Sr., Jimmy O. Adegoke, Thomas N. Chase, Curtis H. Marshall, Toshihisa Matsui, Dev Niyogi, Agricultural and Forest Meteorology 142 (2007), 234 – 254

the water cycle and climate is often primarily intuitive—it was never described from the scientific standpoint. Traditional systems for obtaining water in the 20th century were founded on the building of reservoirs in which water was collected and which served to balance the water regime of rivers. This water was subsequently used to supply the population and to serve the needs of industry and the production of energy and food. In our case, however, the goal is to collect rainwater and, wherever possible, return it to the small water cycle. The primary principle is to allow infiltration of water into the soil, its saturation and the creation of groundwater reserves as well as surface water reserves, and thereby foster the growth of vegetation, which works as a climatization valve between the soil and the atmosphere. The capacity of soil (and subsoil) is usually much higher than the volume of the largest artificial reservoirs in a country. The process of saturation of the small water cycle should be repeated so long as the hydrological regime of watersheds are out of balance. However, such measures need to be carried out on a massive scale. Leaving untreated great "hot plates" lowers the effectiveness of measures taken in their nearby surroundings and sometimes even directly threatens them. The measures that need to be taken are simple, effective and cheap but need to be implemented in the territory of each community and town. Wherever possible, all the communities in the world should get involved in this program of rainwater harvesting and conservation on the continents.

Water against water

Rainwater harvesting and the conservation of water on land has a number of aspects which on first view can appear to be paradoxical. People fearing floods can mistakenly expect that a dry country can better absorb a great amount of water than a country which is already significantly saturated with water. Experiments and experience show otherwise, however. Water flows over sun-burned land as if over impermeable plastic foil while water infiltrates into healthy soil, held firm by vegetation, as if into a sponge. What's more, moderate temperature differences on the surface of land covered with healthy vegetation do not induce the torrential type of precipitation which occurs in an overheated, dehydrated landscape. One paradox, then, is that water itself is the best protection against water.

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A growing cake

Another apparent paradox is that, despite what many people might think, the method of conserving rainwater in one area does not deprive neighboring lands downstream of precious water. The difference is similar to that between a static command economy and a developing free economy. The first always divides the same small cake, and a larger piece for one means a smaller piece for the other. The second, however, divides a cake which is always growing for the benefit of all. The conservation of rainwater on land actually helps neighboring lands. The runoff of rainwater from a country is not stopped completely but is merely slowed down. In place of the sudden rain-dictated, often extremely small or extremely large flow rates, particularly from surface runoff, a much more balanced runoff, fed from groundwater, can now be passed on to one's neighbors. Moderate rain from the small water cycle rooted in a water-saturated country moistens the cities, fields and forests of neighboring lands and thus opens up the opportunity for these places to manage water in the same way. The method of retaining rainwater on land creates cascades of watersheds (or their parts) rich in water instead of dry cascades of watersheds.

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A new culture of responsibility for water

The new water paradigm means developing, utilizing and supporting overland rainwater harvesting and conserving rainwater in watersheds so that ecosystems can "produce" enough good quality water for humanity, food and nature, can purify polluted water, can reduce the risk of natural disasters like floods, droughts and fires, can stabilize the climate and strengthen biodiversity and can become a component of economically sustainable development programs. What the new water paradigm offers is promotion and support for such a culture of land use which will permanently renew water in the water cycle through saturation of the soil with rainwater. The new water paradigm means a return to a natural responsibility for the state of water in one's region, but can also bring a new dimension of solidarity and tolerance between people and communities in watersheds.

The promises of a new paradigm

The new water paradigm brings with it a lot of exceptionally good news. The new economy of water promises that it will be able to balance the debt that arose in the past, lower the unwanted effects of this debt manifesting themselves in ever more extreme weather, stabilize the management of water and guarantee its sufficiency.[55] The continents, with harvested rainwater, will stabilize thermally and climatically and the extremes in the weather—particularly floods and drought—will be mitigated *(Fig. 27).* Increasing the water-holding capacity of the land and harvesting precipitation in the places where it falls are themselves effective anti-flood measures. Natural disasters will obviously always occur, but excluding external factors, the level of economic and civilization damage caused by the weather will be greatly reduced. These statements also apply to the possibile revival of semideserts and deserts through rainwater (*Fig. 28, 29, 30*). With these areas we can assume an exceptionally long and difficult process, because the evaporated water, given the thermal differences, will be carried away to other regions. Nevertheless, particularly in those cases where the change was unwittingly caused by man, deliberate, carefully planned human activity can perhaps return them to their previous state. The slow and gradual revival of semideserts and deserts through rainwater, particularly in places where just a relatively short time ago civilizations blossomed, should not therefore be impossible.

Exciting challenges

This thinking represents both an exciting challenge and a program of activity at the same time. Just as our ancestors attempted in their battle with nature to stake out a piece of uncultivated land and civilize it, so must we attempt to recover from the ocean the water we all have lost in the struggle, so that the efforts of our ancestors to civilize our planet were not merely in vain. We can begin with relatively small volumes of water, like collecting rainwater for the dried-out lawn in our front yards. From there we should go on to the much larger task of finding a way to regain the water which once existed on the territory of cities and which, since the times of the industrial revolution, has been running out into the oceans. The largest, and in a country like Slovakia the maximally taxing, requirement would be to recover all the water which existed in the ecosystem at the time of the climax forest that covered the

[55] See, for example, Oldřich Syrovátka, Miloslav Šír and Miroslav Tesař. "A change in the approach to land – a condition for sustainable development" (2002). Available at www.changenet.sk/ludiaavoda/sprava.stm?x=66907

land a thousand years ago. On other territories, the challenge would have to go even further; for example, we would like to return water and renew the water cycle in the Mediterranean or on the once fertile lands of the Fertile Crescent.

A parallel with financial management

It's good to be aware of the objective fact that water itself represents a financial value and adds to a country's wealth. Let's imagine, then, that a society of people living in a watershed or one of its parts, is employed in a relatively independent branch of a large company which includes all of humanity. The company deals in the appreciation of fresh water, which, in this case, we can imagine as synonymous with money. Water in living organisms will have the most value. The more water there is in living organisms, the more life, biodiversity and food there will be and the better will be the protection of all other water environments. We can compare this water in living organisms to a treasure we do not want to give up under any circumstances. Water in the soil is a deposit in a high-interest account. If there is money in the bank, the profit from it will pleasantly grow thanks to the interest rate. If, however, we fall into debt in soil moisture and we don't want to lose our treasure of water stored in living organisms, the downward spiral of taking new loans from other surrounding water to pay the interest may suddenly threaten to destroy us. The draining of the land is like living on debts. Water falling from the large water cycle is like a state subsidy. It comes for free but not regularly, often to wrong recipients and in the wrong amounts. It sometimes brings more harm than good. To rely on it is risky because today it is here but tomorrow it may not be. It is only the rainfall in the small water cycle which springs from the activities of the company, or sometimes from the activities of its other branches; often, too, it is the previous generation of company employees who, through their hard work, deserve credit for much of the profit we have today. Water in rivers is, if you like, a gift which the community higher in the watershed hands down to the communities lower on the river. The society which acts as the bearer of such a gift should not try to plunder it, but should pass it down in a fit and cared-for state.

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The growth of extremes is worse than warming

The new water paradigm promises more to reduce extreme weather than to stop global warming altogether, even though the evaporation of water into the atmosphere would cool the local climate. There are two reason for this. Despite the great space the media offers to popular theories about the alleged causes of global warming, these causes have not been sufficiently researched with respect to present or past climate changes, nor with respect to the influence of humanity and other influences. The second reason is that we perceive the increasingly extreme weather and climate in territories with insufficient water as a much greater threat to humanity than global warming. The fact that some mechanisms in the balance of energy flows are not explained yet means we cannot prescribe a formula for global cooling. However, it in no way changes our assertion that a saturated water cycle is a planet's cooling mechanism. Rainwater kept in ecosystems cools the surface of the Earth through evaporation; vegetation greatly helps moderate temperatures and optimize evaporation; clouds create shadows which stabilize the temperature of the Earth's surface.

Changes which are not in our power

Obviously, the new water paradigm is not omnipotent. It will not be able to prevent those great and sudden changes in the water cycle and in climates whose origins are outside the activities of humanity. These include the cycles of solar activity, swings in the Earth's axis, the fall of meteorites, the eruptions of volcanoes and the like, though the effects of some of these can in some ways be mitigated. The domain of the new water paradigm are changes in the effects of human activities, and this field is far wider than was understood in the old water paradigm. All other things should be perceived through the prism of the classic stoicism of Epictetus: "Some things are within our power and some things are beyond it...if we desire those things which are not in our power, we will surely be disappointed."[56]

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Tab.13 **A comparison of starting points and approaches according to the old and the new water paradigm**

Old water paradigm	New water paradigm
The water on land does not influence global warming, which is caused by the growth in the volume of greenhouse gases produced by human activity.	An important factor in global warming may be the change in the water cycle caused by the drying and subsequent warming of continents through human activity.
The subject of research is the impact of global warming on the water cycle.	The subject of research is the impact of changes in the water cycle on global warming.
Urbanization, industrialisation and economic exploitation of a country has minimal impact on the water cycle.	Urbanization, industrialisation and economic exploitation of a country (over about 40% of the area of the continents) has a fundamental impact on the influence of the water cycle.
The impact of humanity on the water cycle is negligible and changes in the cycle cannot be reversed by human activity.	The impact of humanity on the water cycle is at present considerable and its changes can go in both directions.
Adverse climatic trends will increase, mitigation can perhaps be expected within a horizon of centuries.	If the new approach to water is applied, a possible recovery of the climate can be expected within decades.
Interest in the large water cycle, which seems difficult to influence, is dominant while the significance of the small water cycle is trivialized.	Interest in the small water cycle dominates.
The reason for extreme weather effects is global warming .	The reason for extreme weather effects are changes in the water cycle.
Global warming and extreme weather effects are inextricably linked.	Global warming can exist without extremes of weather, extremes of weather can exist without global warming.
Global warming is the main climatic problem for humanity.	Extremes of weather are the main climatic problem for humanity.
Vegetation is not ideal from the viewpoint of global warming because it has a low albedo (reflectivity); water vapor again increases the greenhouse effect.	Water and vegetation alleviate unwanted temperature differences; cloudiness moderates the intensity of solar radiation falling on the Earth's surface.
Speaks about the atmosphere as a greenhouse covering of the Earth.	Speaks about the atmosphere as a protective covering for the Earth.

[56] Epictetus, *The Handbook*. Svoboda, 1972, pgs. 27 – 28

Rising ocean levels are a result of melting icebergs.	Rising ocean levels are a result of melting glaciers on land, but also of a decrease in soil moistures, levels of groundwater and the state of other waters on landmasses.
Rainwater is an inconvenience and needs to be quickly removed.	Rainwater is an asset that needs to be retained in soil/plants.[57]
The main source and reserve of water is surface water.	The main source and reserve of water is groundwater.
There is an impersonal attitude by owners and users of land (citizens, companies and offices) towards rainwater in a territory.	A change in the anonymous approach to rainwater on an individual's land and the creation of a spirit of shared responsibility for water resources.
Water is used only once for one purpose and then is sluiced away.	Water can be used for more purposes, then purified and recycled.[58]
Water supplied to communities primarily through a system of mains with "potable" quality water.	Water supplied through a system divided into potable and utility water.
Mutual isolation of public policies in relation to water.	Policies in relation to water are based on a thorough perception of water in the scope of a functioning water cycle in a country.
A sectoral approach to managing water resources on land.	Integrated management of water resources in a territory.

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In the year 2000 Axel Kleidon, Klaus Fraedrich and Martin Heimann presented the results of mathematical modeling of global climate on our planet from the two extremes of conditions: 1.) The simulation of a "Desert World," in which, applying the current distribution of oceans and continents, values corresponding to the parameters of the desert surface were placed on all unglaciated landmasses; and 2.) The simulation of a "Green planet," in which land surfaces were covered with vegetation.[59] Even though we are aware that each such model is a simplification of reality, the results of the modeling are still very interesting.

Precipitation over land of the "Green Planet" was twice that of over the "Desert World." On the "Green Planet," where evapotranspiration was up to three times higher and the content of water vapor in the atmosphere a third higher, there was paradoxically about a quarter less surface runoff than in the "Desert World." The average annual surface temperature over the entire "Green Planet" (including the oceans) was about 0.3 °C lower than in the "Desert World and the surface temperature on land 1.2 °C lower. Above the land of the "Green Planet" there was about 8% more cloud cover. It's interesting that the greater cloud cover on the "Green Planet" caused slightly less evaporation from the oceans and slightly less precipitation over them. The greater cloud cover on the "Green Planet" caused only approximately 5% more absorption of solar radiation, which is surprisingly small in view of the more than 20% difference in the albedo of both worlds. The most important changes occurred in large expanses of the arid regions of Africa, South Asia and Australia, where, in the "Green Planet" simulation, a forest climate was created.

[57] "A Paradigm Shift for Water Management." Rocky Mountain Institute, www.rmi.org
[58] ibid.
[59] A. Kleidon, K. Fraedrich and M. Heimann. "A Green Planet Versus a Desert World: Estimating the Maximum Effect of Vegetationon the Land Surface Climate," *Climatic Change* 44, Kluwer Academic Publishers, pgs. 471 – 493, 2000

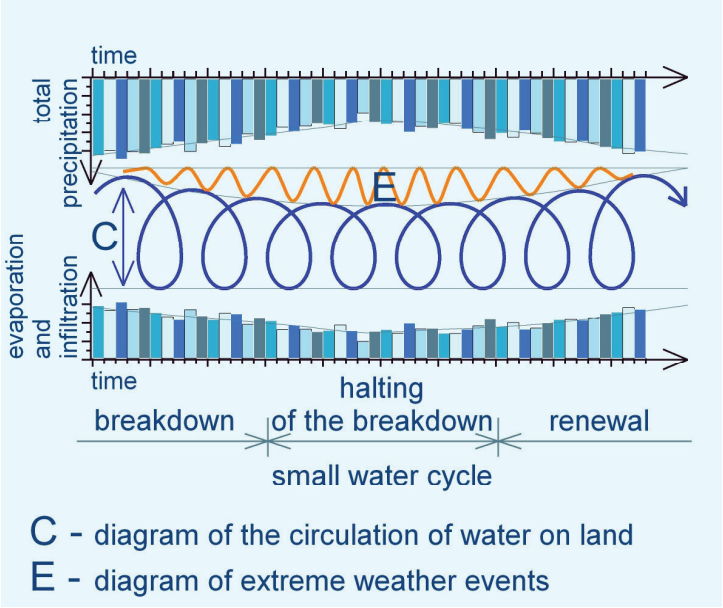


Fig. 27 **The course of destruction of the small water cycle over land until it is halted and then renewed to its original state**

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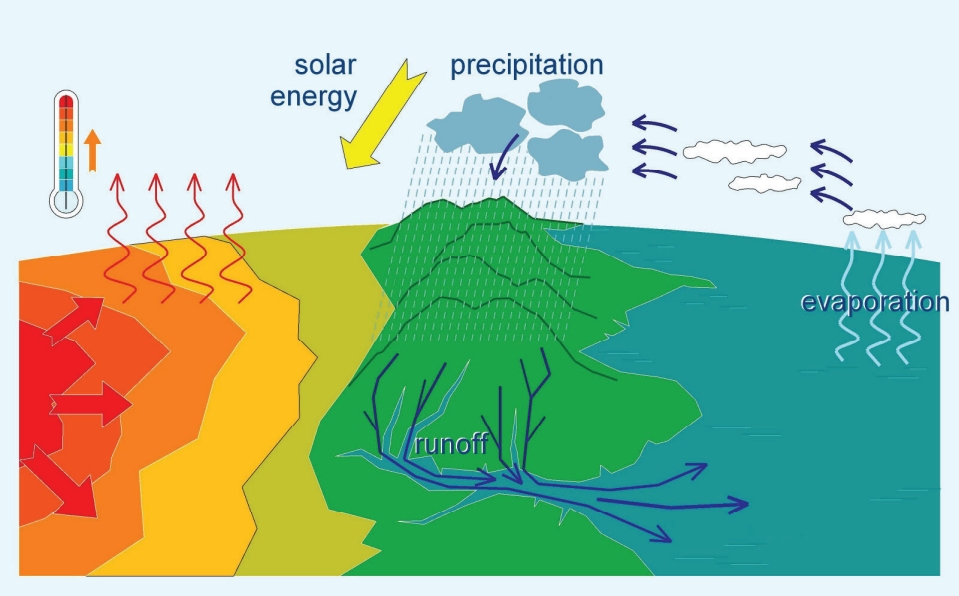


Fig. 28 Diagram of the expansion of deserts or semideserts with the breakdown of the small water cycle

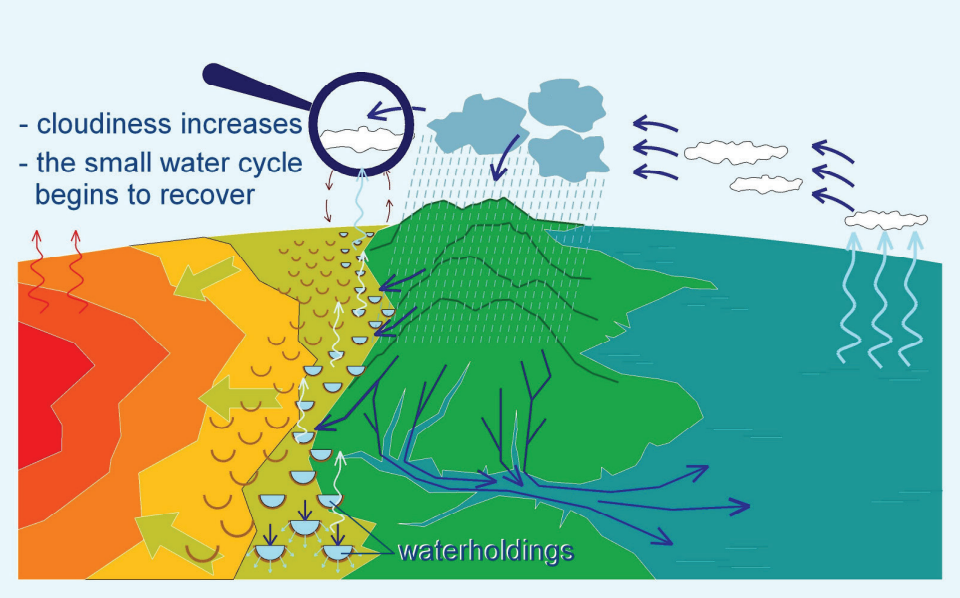


Fig. 29 Waterholding measures on the edge of critical areas
Their role is to harvest and hold water from the small water cycle from adjacent lands, or water from the large water cycle (even in deserts it rains occasionally). The period in which the water cycle is renewed depends on circumstances (the hydrological and pedological conditions, success of the growth of protective vegetation, etc.).

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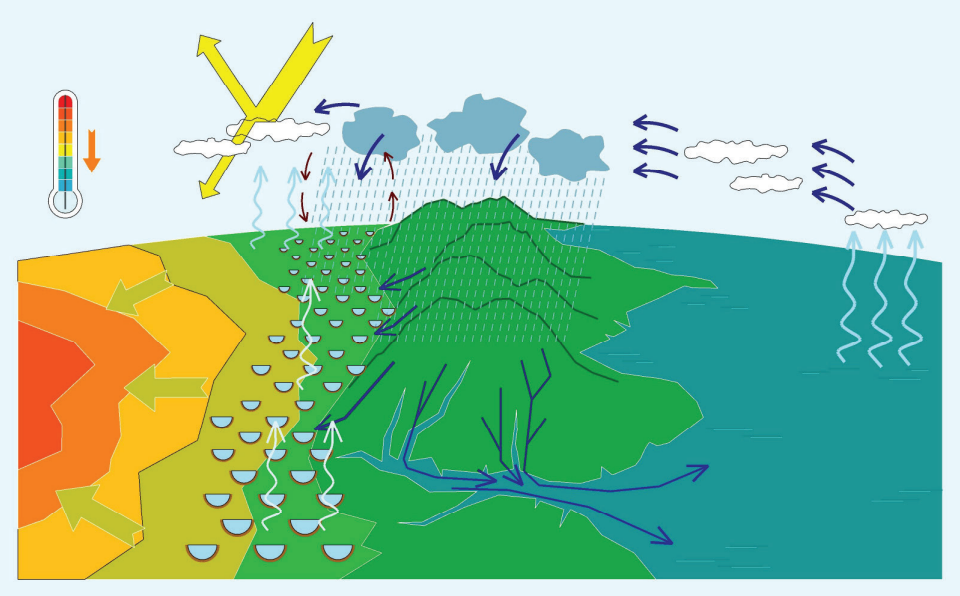


***Fig. 30* Decreasing areas of desert**
The climate recovers in an area with a renewed small water cycle and it can possibly be used as a forefront for further expansion of the hydrological recovery of land.

7 INSTITUTIONAL SUPPORT FOR THE USE OF RAINWATER

"To all the aristocracy and towns, I hereby issue an order to build ponds industriously, first to provide an abundance of fish to feed the people, and secondly to secure the better use of the land - to gather marsh and morass water, so that it might be evaporated by the sun and by warm winds and as a water vapor to fully benefit the surrounding vegetation. Furthermore, a pond is to retain a large amount of water in times of lasting rains or melting snow, and in doing so, shall avert the sudden flooding of downstream lands."

Charles IV, Czech king and Holy Roman emporer, 1356

The Wallachian colonization of Slovakia was accompanied by brutal deforestation. Despite this fact, one can learn learn from their water conservation measures, which effectively compensated for the negative consequences of their activities on the runoff of water from the land. Part of this chapter is devoted to a relatively simple solution for harvesting rainwater on land, through which the new water paradigm promises to return the lost equilibrium to the water cycle in nature and to temper the negative weather phenomena which trouble mankind today. The application of the new water paradigm in practice (its implementation) cannot be done, however, without the appropriate legislative, organizational and financial measures on local, national and international levels. In this part, we will show ways of reforming our relationship towards water in favour of policies reflecting a whole new culture in our civilization's attitude towards this precious resource.

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7.1 The conservation of rainwater in our history

Harvesting and conservation of water in the distant past

The conservation of rainwater on land is not a new idea. Human beings have collected and held atmospheric water throughout the millennia. India has a 4000-year-old tradition of harvesting rainwater for domestic consumption and agricultural use, while in China the tradition is even older (6000 years). The cisterns for the harvesting of rainwater mentioned in the Bible were spread throughout the entire Mediterranean. In semi-arid regions, such cisterns existed in every village and their demolition by enemies made the territory uninhabitable. The Phoenicians and Carthaginians practiced the harvesting of rainwater from the roofs of homes 500 years before Christ, while the Venetians were long dependent on such technology for obtaining water, as were a number of other nations, too.[60]

[60] Brad Lancaster, "Rainwater Harvesting for Drylands," pg. 7

Diverse methods

People used diverse methods for conserving water and these differed depending on the surroundings, the need for water and the available possibilities. The drier the surroundings, the more sophisticated the methods people had to develop (for example, the technology for harvesting water on sloped microbasins used by the residents of the Negev Desert or by the Native Americans in what is today the southwest part of the United States). In lands rich in water, where it was necessary to protect the soil on slopes from water erosion, the creation of terraces developed. This method is known particularly in connection with the paddy fields of China, but has also been used, to a greater or lesser extent, in various other parts of the world, including Slovakia. Terracing is among the most interesting methods of retaining water because it utilizes the infiltration of water into the soil and the free exchange of water between the soil and the atmosphere through vegetation.

Development of agriculture in Slovakia

As we have already mentioned, the central part of Europe did not suffer droughts in the past thanks to the presence of climax forest. The principal shift from natural land to cultured land in the region took place around the 13th century through the development of agriculture, in which most of the population was employed. Changes in the organization of land ownership, particularly in the distribution of specific land, hitherto uncultivated, to individual users, had a decisive impact on agriculture. The basic production units were smallholdings whose acreage sufficed for sustaining the family of the producers. For early medieval tracts (farmsteads and demesnes), the struggle for self-sufficiency was typical. With an increase in the population, however, the land was divided between more families (whether owners or users) and tiny tracts of land originated. Land around individual settlements, separated from neighbors by firm or vegetational lanes, created village territories divided into several parts: into fields for sowing winter and spring wheat, into fallow lands which were an accessory to pasture land, into meadows, into pasturage and into forest tracts. Each such independent unit fulfilled a proportional component of water management, from which it followed that if each user of the land retained water individually on his own territory, then the whole area was equally saturated with water.

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Wallachian colonization

An increase in economic growth occurred during the 14th century after the settling and permanent settlement of the territory. We encounter the first Wallachian colonists, then predominantly Ruthenian-Ukrainian (partially also Polish) settlers, a few of Balkan-Romanian origin who penetrated into the Uh river region and afterwards the Zemplín, Šariš and Spiš regions. They gradually merged to form permanent settlements and found villages. To a great extent, this involved territory 300 to 600 meters above sea level which previously had been only sparsely settled or was not settled at all. Wallachian settlements on Slovak territory, which typically were based on farmsteads located on mountain ridges (also in the middle of forests around springs and so expanding deforested areas), extended across great parts of the present-day territory of the state. They were built up in the White Carpathians and Javorník mountains in the Slovakia-Moravia borderlands while the large forests of Central Slovakia, as well as the upper Nitra and upper Tekov valley, were also significantly reduced by their activities. In the 14th century, Wallachian breeding

(pasturing) of livestock became increasingly common and meant economic exploitation of highlands which were unsuitable for agricultural cultivation. And here we can observe a gradual and systematic building up of untilled boundaries (separating fields) preventing the spontaneous erosion of soil. This measure was a rational compensation for the destructive deforestation of the territory (predominately by uprooting and burning). We can still see today in the Spiš region, for example, largely bare peaks altered by these water conservation barriers.

The need for conservation and antierosion measures

In remote, particularly submontane regions of this territory, there can still be seen traditional terraced land where characteristic narrow belts of land divided by untilled boundaries lie in horizontal lines along sloped terrain, which, thanks to its inaccessibility, was not affected by communist collectivization. Regardless of their long-term neglected state, these are minute patchwork territories of ecological stability, which despite long-term deforestation, demonstrate considerable vitality. We also find similar territory in the surrounding countries of Central Europe. Remarkably well preserved is the character of the cultivated land in Transylvania (today's Central Romania), for example, where a giant mosaic of tiny fields resembles the structure of the gently differentiated and mutually complementary cells of healthy tissue. Despite the fact that the majority of local watercourses are not regulated, this "backward" part of Romania has not been affected even when the rest of the country has had to battle with destructive flooding *(Fig. 31)*.

Functionality of old measures

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Partitioning of agricutural land, which for centuries created a living and working environment for our ancestors, reflected not only on land ownership relations but also on a particularly mature and viable structure that allowed for different forms of land husbandry. The ability of the land to retain and evaporate water was in the past significantly higher despite the fact that partitioning of land was not developed for this particular purpose. The intensive economic activities of humanity in such a system did not interfere with the natural water cycle on land because it was compensated by measures which preserved the ability of the land to retain water. This system of cell arrangement, dating back to the "dark" Middle Ages, has, however, changed over the last few decades into a vast monoculture, the dictate of "scientific" theories and "the invisible hand of the market" variously combining to bring about this change. The land has become monotonous and less structured, today's gigantic drained areas around human settlements, monocultural agriculture on vast and undivided fields, decimated forests and regulated watercoursess all having lost the ability to retain water in a country.

Ignoring the experience of ancestors

7.2 The principles, methods and advantages of conserving rainwater on land

If humanity realizes that the impact it has had on the land has accelerated the runoff of rainwater, surface water and subsurface water and thus damaged the small water cycle in all the ways mentioned in this publication, it should be prepared to take measures for the renewal and recovery of this cycle. The essence of a practical solution to the problems of climate change and water shortages caused by human activity is the renewability of the small water cycle by human activity through a full implementation of comprehensive measures in individual communities and towns. These involve measures which will limit the accelerated runoff of water, increase the water-conservation capability of watersheds and improve the water balance in the region. These measures are often identical to anti-erosion measures. Rainwater harvesting in the places where rain falls, before its drops become part of an uncontrollable current, are excellent means of flood prevention. These are simple measures in the field, similar to certain land planning and land modeling processes.

Technological and biotechnical measures

These measures have a technological, biotechnical and technological-preventative character. Technological measures include absorption ditches through contouring (lengthways shallow drainage ditches), the use of sloped depressions as absorption and reservoir areas, the building of depressions, absorption pits, waterholdings and limans, improvement of surfaces and the conservation and infiltration of rainwater, small dams or wells for watercourses, streams in gulches or ravines, the building and maintaining of dry reservoirs, polders, keeping and using the meanders of watercourses and blind tributaries, objects for linear protected dams for the discharging of water into flood plains, the building of small weirs for water reservoirs and ponds, the damming of streams and anti-erosion measures in forests and the like (*Fig. 32, 33, 34, 35, 36*). Biotechnological measures are similar but barriers to surface runoffs are associated with the use of vegetation—borders, grassy belts, belts of shrubbery and trees, unused grassy and forested areas and the like.

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Technological-preventive measures

Examples of technological-preventive and economic measures could be the application of favorable procedures for protecting the soil (for example, contour plowing), ensuring the replenishment of water sluiced away from a territory, the limiting of non-vegetation hard surfaces in built-up areas, replacing impermeable surfaces with permeable ones, constructing protective barrages further from the centers of water flows, forbidding the clear-cutting of forests, the protection of forests from damaging insects (for example, bark beetles), optimal structure and quality of forests, land-planning or a new division of agricultural ground, the applying of integrated management and a more sensitive use of the land with the view towards conservation and anti-erosion measures and the like.

With the conservation of water on land a number of principles need to be kept in mind. The first of these is the principle of *solidarity* (the principle of water tolerance), which means that along with the design and implementation of measures which have an impact

Tolerance, partnership, subsidiarity

on the runoff conditions from a territory, it is necessary to take into account the whole watershed area. Measures implemented in one territory cannot worsen the situation downstream or upstream in the watershed region. The principle of *partnership* means that an analysis of the situation in the area of runoff levels from a territory (community, town, region, watershed and the like) and important decisions related to proposed measures for increasing the water-conservation ability of a catchment area and decreasing the process of erosion, only take place after discussions and mutual agreement of all deciding partners in the basin—administrators of water flows, agriculturalists, forest rangers, representatives of communities and town, landowners and experts. Anti-erosion projects and technological measures for increasing the water conservation capability of a water catchment area should be prepared and carried out in a partnership. The principle of *subsidiarity* as defined in the Middle Ages and applied in the EU, in this case means that with practical administration and protection of water resources in a territory and in a watershed, that what can be done better by a lower level of public administration should be left to be handled on this level. This principle points to the need for effective decentralization of activities which can be better, faster and more cheaply handled by local or regional self-government.

Renewing the autoregulation of natural processes

Alongside the previous principles, which are bound up with human activities, we can also mention the principle of *autoregulation of natural processes*, which means that the effect of an initial and one-time investment into the implementation of measures aimed at improving the water balance in an area should gradually each year show an improved quality of the natural environment and should raise the effectiveness of other local measures implemented in the territory. The principle of *a sustainable solution* is bound together with this principle. Carrying out these mentioned measures helps eliminate some of the reasons for unwanted climate changes caused by human activities. Thus, better living conditions and a better environment for future generations will be created, the natural potential of the territory will remain the same and the protective and autoregulating functions of ecosystems will be preserved.

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7.3 The civil sector

The citizen – the most important and institutions

Alexis de Tocqueville, in his work *Democracy in America* from the first half of the 19th century, wrote that while in France the government was at the forefront of great new projects and in England the aristocracy, in the United States it was civic associations that performed this function.[61] In a democratic society the most important "institution" is the citizen. He has a far more important function, but also greater responsibility, than a citizen in a non-democratic society. And just as we believe more in a great number of humble drops of rain than in their concentration in rivers, the will and the conviction of common citizens has, in the application of the new water paradigm, greater meaning than the decrees of

[61] Alexis de Tocqueville. *Democracy in America, II*, Chapter V

government (although the government, like the river, also has its function). Similarly, as in all other cases, in the case of the conservation of water on land, the tasks and authorities should be divided in agreement with the principle of subsidiarity; that is, institutions on a higher level should handle a given item only when it cannot be more effectively resolved on a lower level. The need to conserve water in a country is worldwide, and therefore institutions on all levels, including national and international, should be involved. This all depends, however, on the initiative of citizens and their ability to determine which activities they can manage themselves (those where intervention from above would be counterproductive) and which they would need help from higher levels with. The individual citizen, or a citizen in association with others, has an "open space" in which to do more than just his duty.

Possible involvement of citizens

Citizens who embrace the thinking of the new water paradigm will advocate the protection of water in their own living space and actively demand from public administration the preparation and realization of measures aimed at the renewal of the water cycle in an area. Citizens of cities and communities will see the water in their own surroundings as the thermoregulator of climatic conditions and rainwater as the main "provider" of sufficient water resources in the region. They will support the need for building catchment areas, depressions and evaporation surfaces for the renewal of the country and land-planning purposes. They will request a separated supply of drinking and of utility water and will encourage repeated use of water.

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Opportunities for non-profit organizations

Non-profit organizations which embrace the thinking of the new water paradigm will inform the public about the need for a new approach to water and call for access to information about the application of the new approach in practice. They can initiate different local projects aimed at improving public and civic interest in water resources in the region (projects, for instance, aimed at cleaning a river and its surroundings, foresting unused plots of land, projects with slogans such as: "Let's not pay for the sluicing away of rainwater, let's conserve water in an area", projects aimed at cleaner groundwater, better use of utility water for different purposes, and the protection of drinking water). Some of them can focus on encouraging leadership and on building the capacity of civic and community involvement in the given problem. In addition, they can create a new space for the development of business philanthropy and donations towards implementation of the new approach to water, both for developed, as well as for developing countries.

Property owners

Owners and co-owners of flats, buildings and property within the residential areas of municipalities and towns should create water societies in the interest of coordinating and ensuring the retention of rainwater on built-up land. In rural areas outside of towns and municipalities, particularly in agricultural and forested areas, water cooperatives aimed at retaining water in an area could be established through the active participation of the owners and users of these lands. Local councils could then become responsible for coordinating such measures effectively. Meanwhile, independent owners of neighboring buildings and property in the territories of individual towns and municipalities can, among themselves, establish water

societies and cooperatives, if such a form of cooperation makes it easier to to carry out technical and biotechnical measures aimed at increasing the water-conservation capability of catchment areas and decreasing the process of erosion in the given territory. Cooperation is also required for the maintenance of such established systems. Anti-erosion and water-conservation measures serve for the long-term protection and improvement of their own property.

Independent media

Independent media could focus on the hitherto neglected importance of water in discussions about climate changes. If the media were to embrace the principles of the new water paradigm, they could become "watchdogs" guarding against the indifferent and exploitative treatment of water on land, treatment which, in various ways, is damaging the interests of the majority of the population.

7.4 The economic sector

Innovation and a noble impulse

Thanks to its economic and management dimension, the new water paradigm represents a fundamental innovation in current economic practice and is thus becoming a basis for new economic thinking and knowledge. At the same time it provides a noble and socially useful impulse for the economic sector as well as an asset for private and state water management, agriculture and forestry companies. Since from the viewpoint of the new water paradigm land managers are important, it will be in their interest to ensure sufficient water resources, minimize extreme weather and increase the economic usefulness of the land. They are important socio-economic partners in preparation of integrated management plans for watersheds as well as in their implementation. Usually they promote only "sector" policies, but in the new water paradigm, they will take on an umbrella role in the integration of management of water resources on land.

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Integrated management and coordination centers

It is necessary to accelerate the preparation for integrated management of surface water and rainwater on land and its implementation through involvement of the coordination centers in close cooperation with local government. Water companies could focus on building a dual system for the supply of drinking and utility water in an area and decentralized systems for purifying sewage water with the use of different recirculation systems. The water removed from a territory could, after multiple uses, be purified and returned to the ecosystem.

A meaningful increase in employment

Adopting the new paradigm will create space for employers to carry out jobs which are relatively simple and undemanding but unprecedented in scale. These will be both in the public and their own interest in terms of protection of property (soil, buildings, moveable objects). Employing workers for the preparation, implementation and maintenance of anti-erosion and water conservation measures means valuable employment opportunities both in the affluent and

the developing world. This can then serve as an impulse for economic and social growth and the elimination of poverty in economically weak regions and in regions with insufficient sources of water.

Land planning

A new challenge will arise for landscape engineers, architects, urbanists, construction engineers and planners, because a new era of zoning and landscape planning for populations and whole regions will dawn. The need will arise for a thorough local reappraisal of drainage relations and the design of anti-erosion and water conservation measures on the land. Opportunities will arise for rating agencies to make independent evaluations of an area's water balance and to determine its value and competitiveness from the viewpoint of water resources. With knowledge of the new paradigm, scientific communities could devote their attention to a detailed mapping of the mechanism of the water cycle as well as to predictions of climate change patterns.

Developers

In building greenfield sites and residential buildings, in restoring and renewing original historic and urban structures, and in rebuilding old and building from scratch new industrial parks, shopping and amusement centers, developers should include in the urban and architectural strategies of such projects the two key principles: "Retain water on these plots of land!" and "Allow it to evaporate and infiltrate into the soil!“ Retaining rainwater and creating greenery should be two of the main ways of making the environments of building centers and parks more attractive.

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Construction companies

Construction, garden and design companies can use the impulse of the new water paradigm to implement local flood prevention measures, to renew the water regime in an area and to apply new approaches and technologies which create good conditions for conserving, absorbing and evaporating rainwater in combination with vegetation. Supply companies can focus on widening their assortment of machinery, materials, technologies and services, all of which will be needed to carry out these measures in the field, as well as to ensure their subsequent maintenance.

Banks and insurance companies

The new paradigm creates the need for rapid financing of prepared projects and the implementation of conservation and anti-erosion measures in a territory. The banking sector can help through a system of loans to the public as well as to the private sector. In recent years insurance companies have registered a sharp growth in insurance events, so they could focus on supporting the creation of authorized centers which will allow anyone to gain the knowledge needed for assessing the state of the water cycle over their own territory and property, as well as for preparing and taking necessary measures in the field. They can add to their range of services complex new products with suitable motivational schemes for their clients.

7.5 Public sector institutions

Current approach versus EU policy

The relationship of society to water up till now can be understood as a combination of mutually isolated policies and of various personal attitudes and approaches (the obtaining and discharging of water, the production and supply of drinking water, purifying waste water, water for agriculture, water for manufacture and industry, surface water and bodies of water, protection from floods, water for firefighting, household drinking water, water for my garden, rainwater from my roof, etc.). The sectoral, departmental and professional approach has hitherto been characterized by interior and mutual isolation (expert, professional and supplier-purchaser) and by the strictly limited authority of separate bodies of public administration. Each office deals with water from one specific point of view. The EU general directive on water (Directive 2000/60/EC) attempts to go beyond such an approach, however, and points out the need for one which is more integrated.

The paradigm as a framework for an integrated approach

Through the acceptance of the new water paradigm, the protection, perception and use of water becomes genuinely integrated and holistic in the context of recognizing the significance of the water cycle and the conditions of the given catchment area. Understanding the basic circulation of water in nature is relatively simple and can be precisely described and quantified. The adaptation of this knowledge for political decisions, however, requires a fundamentally qualitative and systematic transformation of traditionally isolated local water management policies into ones which are fully integrated. For administrators of water basins, an opportunity arises to reevaluate the management of administered bodies of water and the infrastructure in the region. In the sense of the new water paradigm, they can emphasize flood prevention (anti-erosion measures and measures for increasing the water retentiveness of all microcatchments in the administered territory), and thus create, in cooperation with local government, an institutional starting point for the integrated management of watersheds.

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Opportunities for educational institutions

Educational institutions should include knowledge of the new water paradigm in the curriculum both at schools and at centers of adult learning and also connect such education with the needs of people already working in these fields. This includes support for education of local government representatives and support for international exchange programs. The study of water in the context of the new water paradigm could also become a subject of study at universities and faculties. Such a subject would have scientific, research and above all study programs typical for other university subjects.

Opportunities for towns and municipalities

Towns and municipalities are key partners in the practical introduction of the new approach to water and the implementation of the necessary technologies, biotechnologies and economic measures in a region. They can be highly effective in pushing through the relevant measures on their territories at the same time as respecting the principles of partnership, solidarity and subsidiarity. Above all, towns and municipalities must endure the results of floods and

climate changes which decrease their competitiveness. They should therefore focus on promoting an intersectoral and integrated approach towards renewal of the water cycle on their own territories as a starting point for the economic development of their locality. In practice, this means carrying out studies and projects aimed at: increasing the water conservation capability of the territory (within the community or outside of it); lowering water-caused soil erosion; creating and fulfilling motivational economic programs for residents and landowners in the region (regional administration can, for example, provide special tax relief and one-off subsidies for every 1 m^3 water conservation space created or for an anti-erosion alteration to lands on community land); or for judging the impacts of investment activities on the runoff levels in an area. Neighboring settlements, associations of towns and municipalities, as well as whole regions, can create and coordinate a common system of flood prevention and encourage the creation of their own consulting, informational and competency centers for towns and municipalities and for owners of land and buildings. This cooperation could take the form of "self-administered basins" organized within the borders of hydrological watersheds.

Opportunities for government policy

The essence of the measures which need to be passed on the national level is the implementation of structural reforms for water management and economic policies (including agricultural and forestry policies) which influence the runoff conditions on a territory. The new water policy should focus on the overall protection of the territory with a focus on improving the water balance through the passing of measures aimed at increasing the water retentiveness of a watershed and decreasing processes of erosion. The state should create the conditions and a framework for the systematic integration of hitherto isolated sectoral policies relating to water and the associated harmonization of subsidy policies. A complex approach to water requires passing a new generation of laws, including acceptance of a law on the protection and renewal of the small water cycle in land, which would lead, in addition to other things, to an assessment of the influences of investment activities on the water balance of a territory. New financial, supportive and motivational instruments for the implementation of the new approach to water can then arise. The state budget can provide support for the application of anti-erosion and water conservation measures, support for the preparation and implementation of community projects, as well as support for research activities and the monitoring of newly proposed and implemented measures in a region.

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Opportunities for international institutions

If a community of states (the European Union) and global institutions (for example, the United Nations) embrace the new water paradigm, they could assert their authority and declare their support for a new approach to the protection and conservation of rainwater on land. In some cases, these institutions have the powers of international law in their hands, powers which, if needed, could be used, of course, in appropriate measure and in respect to the principle of subsidiarity. Just as the UN was able to mobilize itself into supporting research into the relationship between climate changes and greenhouse gases (IPCC) and into specific steps in the implementation of the conclusions of this study (for example, the Kyoto Protocol), it should act similarly with respect to the role of water and the need to renew the small water cycles over the continents. The updating of

developmental aid from countries or communities of states to developing countries could gain this new dimension. In the interest of monitoring processes, it would be necessary to add to the list of indicators of sustainable development in *Agenda 21* monitoring of the renewal of the small water cycle over land (over continents, regions, settlements) and implementation of comprehensive systematic measures for increasing the water retentiveness and comprehensive anti-erosion measures. The renewal of the small water cycle and the integrated management of water resources in catchment areas could become a new pillar of agricultural, forestry and water management practice, of a policy of solidarity and of the policy for rural development (giving opportunities for a more meaningful reform of the Common Agricultural Policy of the EU). The currently running campaign of the European Commission, *Your Impact on Climate Changes* through four activities—slow down, switch off, walk and recycle—could be expanded to include a fifth activity—conserve rainwater on land.

"The day is not far away when it will be considered wrong for an engineer inexpert in biology, and especially in ecology, to go into the countryside with a sliderule and the intention of altering it…The natural landscape has been so violated by these alterations, left so shabby and superficially civilized,, that soon everyone will feel the need to return to our countryside its true meaning and value. But how to do it? A simple return to its original state is not possible. We cannot efface the population from the surface of the Earth, nor can we decrease its economic progress, standard of living and involvement in global production processes. We cannot annul any of what has distinguished our age from the period one hundred years ago. On the contrary, we have to lift everything to a higher level. That is why we cannot keep the countryside in a stage of economic primitivism. Nothing remains but to alter the current state of the country, but to alter it more intelligently, more naturally, more professionally. And this is a task so noble that all missions of the nineteenth century pale before it."

Vladimír Úlehla, 1947[62]

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7.6 Financial costs and the assessment of scenarios

Undemanding financially and timewise

The economic and systematic assessment of the advantages of the new water paradigm can be divided into three areas—these are balance calculations, economic calculations and the assessment of social and environmental costs and benefits of individual scenarios. Balance calculations allow for the monitoring of the water balance of a territory and the analysis of weather patterns (temperature patterns, precipitation totals, the progress of water runoff from a territory, changes in the groundwater levels, changing levels of soil dampness, the frequency and incidence of extreme weather events). Economic calculations of the separate projected patterns include adaptation costs, damage caused by extreme weather events and a fall in

Aspects of assessing advantages

[62] Cited from the publication of Míchal I. *Ecological Stability*, pg. 217, Veronica, Brno, 1994

the economic performance of an area. The assessment of social and environmental aspects also includes various assets which cannot be easily expressed financially.

The IPCC scenario

The two primary scenarios from the viewpoint of the new water paradigm are derived from the most widely assumed reasons for climate change. The scenario emerging from the decisive role of the growth of CO_2 concentrations in the atmosphere,[63] which is the widely preferred theory both scientifically and politically, assumes that adapting and improving technology in order to lower emissions of CO_2 is a necessary step in responding to climate change. This scenario indicates that by the end of the 21st century, the following are to be expected: an increase in global temperatures on the surface of the Earth of 5 to 6 °C; a rise in sea levels of 50–100 cm; a growth in extreme weather events; economic damage costing up to1–5% of the annual gross domestic product of every country, with a possible acceleration of up to 20% in the most unfavorable circumstances.[64] Thus far, not all the financial costs of adaptation are known; their gradual rise is expected, however.

Scenarios with the use of water

The scenario emerging from the decisive role of water in the recovery of the climate through the renewal of the small water cycle takes a more active approach, and in the case of worldwide implementation of the new water paradigm's measures, promises a fundamental, across-the-board decrease in extreme weather events on land, a more uniform spreading of precipitation over the continents, effective protection from flood and drought, the stabilizing of the climate in rural and urban environments, enough water for the growth of the world population, as well as a decrease in economic damage caused by extreme weather events. With regard to the increase in the global temperature of the Earth and the rise in sea levels, it promises a moderating of their rise to that extent to which they come from human activities in transformation of the surface of the land. In the understanding of the new water paradigm, this is a significant part of what humanity is really able to influence.

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The new water paradigm represents, both in terms of time and money, a manageable investment in relation to the stabilization of the climate and the provision of sufficient water. For implementation of the necessary measures in a country, investment costs worth roughly 0.1% of a country's annual GDP should suffice for a program lasting 10-15 years. These costs are equivalent to the costs needed for the preparation and implementation of comprehensive flood prevention measures (anti-erosion and water conservation measures) in a region. The average costs for the renewal of the small water cycle (increasing water conservation capabilities of watersheds and decreasing erosion processes) in a unit of land depend on its character, morphology and the need for intervention. There are diverse technological and biotechnical measures which do not require massive investments and investment construction. On the contrary, they are undemanding and utilize local materials and the local labour force. The maintaining of measures implemented in a territory would be handled by landowners. This would cost, however, only a relatively small amount and would create a useful level of primary and

[63] http://www.ipcc.ch/
[64] http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/

subsequently secondary employment on a global level. The average costs for implementation of the new water paradigm for each square kilometer of land therefore represents 0.1% of the annual GDP of a country multiplied by the number of years needed for implementation and then divided by the area of the region (in km^2). This approach is less expensive than any other solutions which have already been tried or proposed.

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Fig. 31 **Terraced slopes in Romania's Transylvania region**
Territories altered by this ancient method showed an admirable resistance to flooding.

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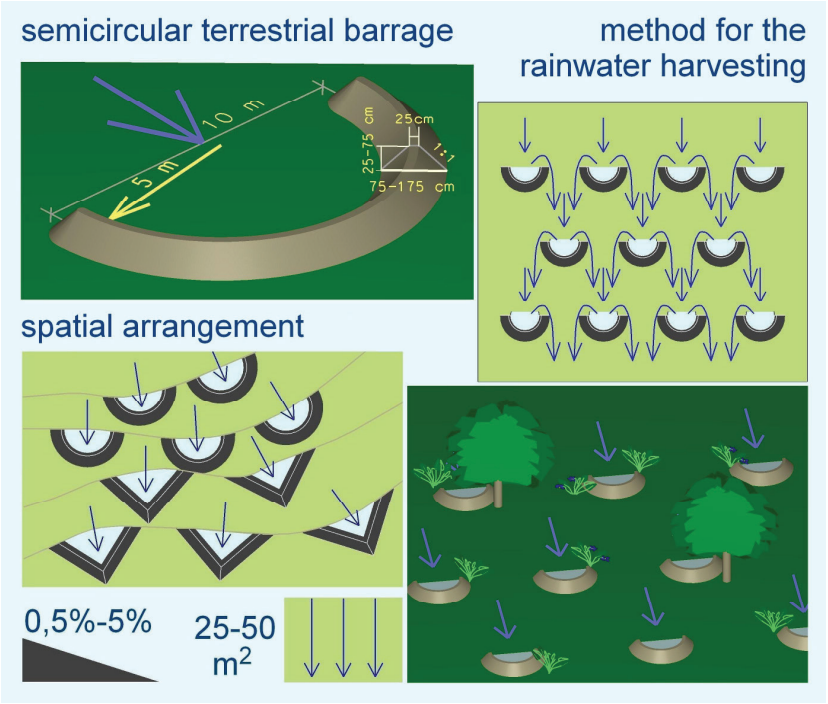


Fig. 32 **An example of cascade ground tanks for rainwater harvesting on slopes**

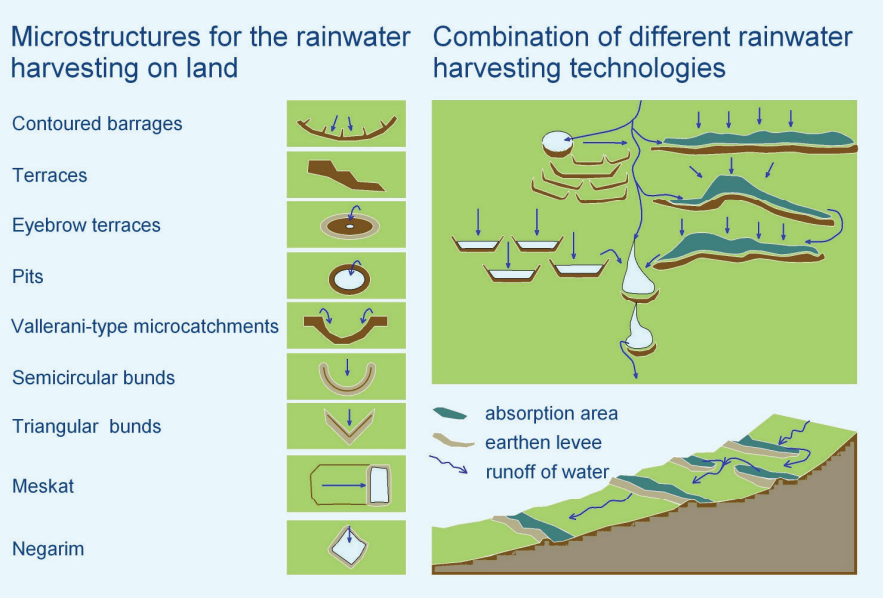


***Fig. 33* A diagram of technological measures for the protection of land against erosion and for rainwater harvesting and conservation on land**

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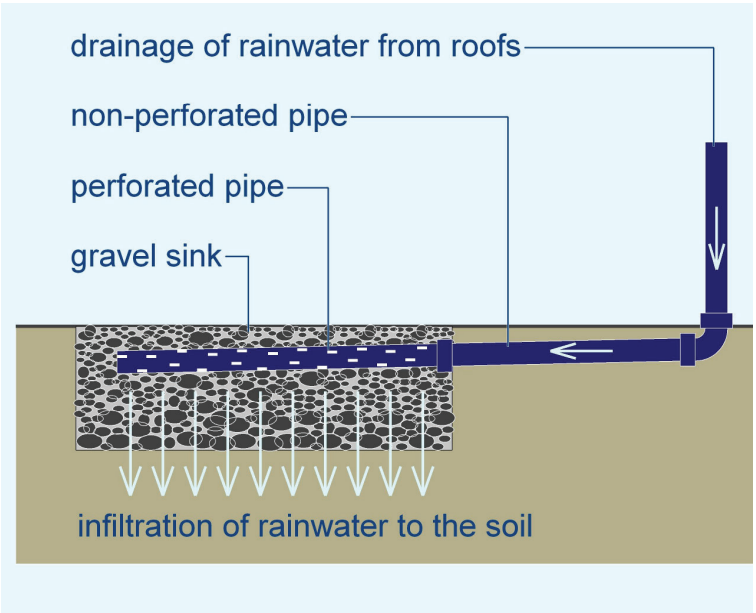


***Fig. 34* Detail of a pipe for taking rainwater to a gravel spall drain[65]**
Utilized for the infiltration of rainwater from the roofs of houses to the soil and subsoil.

[65] City of Tucson – Water Harvesting Guidance Manual, Ordinance Number 10210, October 2005, page 16



***Fig. 35* A Water Forest in the High Tatras – building water conservation measures on territory destroyed by a natural disaster**
An example of the renewal of vegetation and hydrological stabilization of a territory through the conservation of water on land.

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***Fig. 36* The KVP housing estate in Košice – protection of buildings under a slope with the help of earthen bunds along contour lines**

8 CLOSING SUMMARY

Disruption of the balance of the water cycle

The circulation of water in nature takes place through the large and small water cycles. Humanity, through its activities and systematic transformation of natural land into cultured land, accelerates the runoff of rainwater from land. Limiting evaporation and the infiltration of water into the soil decreases the supply of water to the small water cycle. The equilibrium of the water balance in the small water cycle is thus disturbed and it gradually starts to break down over land.

Climatic change, the growth of weather extremes

If there is insufficient water in the soil, on its surface and in plants, immense flows of solar energy cannot be transformed into the latent heat of water evaporation but are instead changed into sensible heat. The surface of the ground soon overheats, and as a result, a breakdown in the supply of water from the large water cycle arises over the affected land. Local processes over huge areas inhabited and exploited by human beings are changed into global processes and with processes that occur without the assistance of human beings; together they create the phenomenon known as *global climate change*. The part of global climate change caused by human activities then is largely based on the drainage of water from the land, the consequent rise in temperature differences triggering off mechanisms which cause a rise in climatic extremes. The disruption of the small water cycle is accompanied by growing extremes in the weather, a gradual drop in groundwater reserves, more frequent flooding, longer periods of drought and an increase in the water shortage in the region.

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Opportunity for renewal of the water cycle

The part of climatic change which is the result of human activities (draining of a region), can be reversed through systematic human activity (the watering of a region). The watering of land can be achieved through saturation of the small water cycle over land by ensuring comprehensive conservation of rainwater and enabling its infiltration and evaporation. This can help achieve the renewal of the small water cycle over a region and fundamentally change the trend of changing climatic conditions: it can—to reverse the trend of regional warming—temper extreme weather events and ensure a growth in water reserves in the territory.

Relatively undemanding financially and timewise

The renewal of the small water cycle over an area, however, depends not only on the extent to which the area has been damaged but also on a number of other factors. In the case of Slovakia, we can expect visible results relatively soon (10 to 20 years) after implementation of these measures. The financial costs of these specific measures are moderate sums which can be allocated from state, public and private budgets. Support for the implementation of far-reaching measures should be linked pro rata to each 1 m^3 of reservoir volume built in the ground or to anti-erosion measures carried out. The implementation of water conservation measures should, until the renewal of the small water cycle and the maximalization of a stable water balance in a region, replace previous investment measures, which only served to accelerate the runoff of water from a region.

Every drop matters

The conservation of rainwater on land "in situ" and the conducting away only of the natural surplus of water in a region is "condicio sine qua non"—a condition essential for ensuring environmental security, global stability and the sustenance of economic growth. Fulfilling these conditions should be of interest to each individual and each community. This is the first time in the history of human civilization when the impact of mankind's activities on the water cycle and the decrease of amount of water in it will have to be evaluated. The statement of the Srí Lankan king, Parakramabahu the Great—"Not even a single raindrop should be allowed to flow into the sea without it first having been used for the benefit of the people..." —is the best summing up of the new water paradigm, a statement which, in the coming decades, should become a slogan for mankind calling for the preservation of civilization.

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TEXT FOR THE BACK COVER:

Not even a single raindrop should be allowed to flow into the sea without it first having been used for the benefit of the people...

King Parakramabahu the Great of Sri Lanka (1153 – 1186)

In his groundbreaking book, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Adam Smith introduced the example of smiths who, even with the greatest of effort, could not make more than one pin per day. The division of labour increased production of pins twenty-fold and simple machines many thousand-fold, so that what was once a luxury item soon became available to even the poorest of families. This book is concerned primarily with the importance and origin of the wealth of water on land. Its ambition is to change the current practice of draining water from large areas of land, a process caused by deforestation, agricultural activities and the sluicing of rainwater out of cities. The draining of land means decreasing evaporation, the transforming of solar radiation into sensible heat and a change in the great flows of energy in the area. This has an impact on the circulation of water on land and a rise in extreme weather events. The authors of this publication see a solution to these problems in relatively simple rainwater harvesting and water conservation measures, the kind that people in different parts of the world applied for hundreds or even thousands of years. They served for the acquiring of new sources of water and are often identical to flood prevention and anti-erosion measures. With widespread use, they can multiply the amount of water which can be used by people, nature and manufacturing; at the same time, they can temper micro- and macroclimatic problems caused by the drainage of land and thus contribute to the recovery of the climate. The panel of authors, who all come from an environment of non-governmental organizations, offer this book to anyone involved with water and its management as well as to public sector institutions and private investors, and more or less every single citizen of our planet.

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The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures

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Scientific Reports **volume 6**, Article number: 35070 (2016) | Download Citation

Abstract

While photovoltaic (PV) renewable energy production has surged, concerns remain about whether or not PV power plants induce a "heat island" (PVHI) effect, much like the increase in ambient temperatures relative to wildlands generates an Urban Heat Island effect in cities. Transitions to PV plants alter the way that incoming energy is reflected back to the atmosphere or absorbed, stored, and reradiated because PV plants change the albedo, vegetation, and structure of the terrain. Prior work on the PVHI has been mostly theoretical or based upon simulated models. Furthermore, past empirical work has been limited in scope to a single biome. Because there are still large uncertainties surrounding the potential for a PHVI effect, we examined the PVHI empirically with experiments that spanned three biomes. We found temperatures over a PV plant were regularly 3–4 °C warmer than wildlands at night, which is in direct contrast to other studies based on models that suggested that PV systems should decrease ambient temperatures. Deducing the underlying cause and scale of the PVHI effect and identifying mitigation strategies are key in supporting decision-making regarding PV development, particularly in semiarid landscapes, which are among the most likely for large-scale PV installations.

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Introduction

Electricity production from large-scale photovoltaic (PV) installations has increased exponentially in recent decades[1,2,3]. This proliferation in renewable energy portfolios and PV powerplants demonstrate an increase in the acceptance and cost-effectiveness of this technology[4,5]. Corresponding with this upsurge in installation has been an increase in the assessment of the impacts of utility-scale PV[4,6,7,8], including those on the efficacy of PV to offset energy needs[9,10]. A growing concern that remains understudied is whether or not PV installations cause a "heat island" (PVHI) effect that warms surrounding areas, thereby potentially influencing wildlife habitat, ecosystem function in wildlands, and human health and even home values in residential areas[11]. As with the Urban Heat Island (UHI) effect, large PV power plants

1

induce a landscape change that reduces albedo so that the modified landscape is darker and, therefore, less reflective. Lowering the terrestrial albedo from ~20% in natural deserts[12] to ~5% over PV panels[13] alters the energy balance of absorption, storage, and release of short- and longwave radiation[14,15]. However, several differences between the UHI and potential PVHI effects confound a simple comparison and produce competing hypotheses about whether or not large-scale PV installations will create a heat island effect. These include: (*i*) PV installations shade a portion of the ground and therefore could reduce heat absorption in surface soils[16], (*ii*) PV panels are thin and have little heat capacity per unit area but PV modules emit thermal radiation both up and down, and this is particularly significant during the day when PV modules are often 20 °C warmer than ambient temperatures, (*iii*) vegetation is usually removed from PV power plants, reducing the amount of cooling due to transpiration[14], (*iv*) electric power removes energy from PV power plants, and (*v*) PV panels reflect and absorb upwelling longwave radiation, and thus can prevent the soil from cooling as much as it might under a dark sky at night.

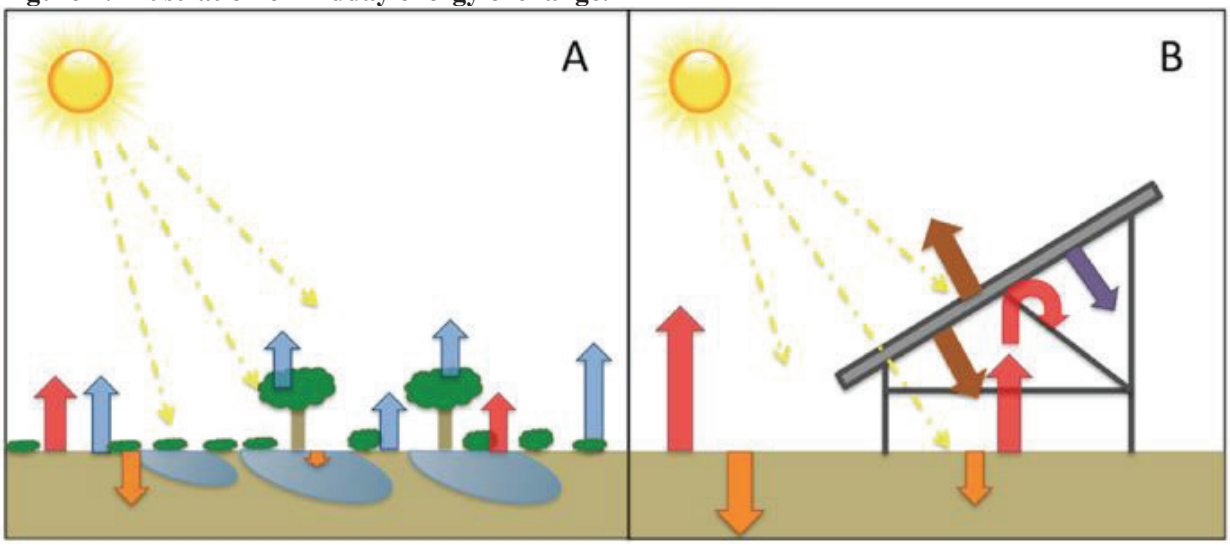
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Public concerns over a PVHI effect have, in some cases, led to resistance to large-scale solar development. By some estimates, nearly half of recently proposed energy projects have been delayed or abandoned due to local opposition[11]. Yet, there is a remarkable lack of data as to whether or not the PVHI effect is real or simply an issue associated with perceptions of environmental change caused by the installations that lead to "not in my backyard" (NIMBY) thinking. Some models have suggested that PV systems can actually cause a cooling effect on the local environment, depending on the efficiency and placement of the PV panels[17,18]. But these studies are limited in their applicability when evaluating large-scale PV installations because they consider changes in albedo and energy exchange within an urban environment (rather than a natural ecosystem) or in European locations that are not representative of semiarid energy dynamics where large-scale PV installations are concentrated[10,19]. Most previous research, then, is based on untested theory and numerical modeling. Therefore, the potential for a PHVI effect must be examined with empirical data obtained through rigorous experimental terms.

The significance of a PVHI effect depends on energy balance. Incoming solar energy typically is either reflected back to the atmosphere or absorbed, stored, and later re-radiated in the form of latent or sensible heat (Fig. 1)[20,21]. Within natural ecosystems, vegetation reduces heat gain and storage in soils by creating surface shading, though the degree of shading varies among plant types[22]. Energy absorbed by vegetation and surface soils can be released as latent heat in the transition of liquid water to water vapor to the atmosphere through evapotranspiration – the combined water loss from soils (evaporation) and vegetation (transpiration). This heat-dissipating latent energy exchange is dramatically reduced in a typical PV installation (Fig. 1 transition from A-to-B), potentially leading to greater heat absorption by soils in PV installations. This increased absorption, in turn, could increase soil temperatures and lead to greater sensible heat efflux from the soil in the form of radiation and convection. Additionally, PV panel surfaces absorb more solar insolation due to a decreased albedo[13,23,24]. PV panels will re-radiate most of this energy as longwave sensible heat and convert a lesser amount (~20%) of this energy into usable electricity. PV panels also allow some light energy to pass, which, again, in unvegetated soils will lead to greater heat absorption. This increased absorption could lead to greater sensible heat efflux from the soil that may be trapped under the PV panels. A PVHI effect would be the result of a detectable increase in sensible heat flux (atmospheric warming) resulting

from an alteration in the balance of incoming and outgoing energy fluxes due to landscape transformation. Developing a full thermal model is challenging[17,18,25], and there are large uncertainties surrounding multiple terms including variations in albedo, cloud cover, seasonality in advection, and panel efficiency, which itself is dynamic and impacted by the local environment. These uncertainties are compounded by the lack of empirical data.

Figure 1: Illustration of midday energy exchange.



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Assuming equal rates of incoming energy from the sun, a transition from (**A**) a vegetated ecosystem to (**B**) a photovoltaic (PV) power plant installation will significantly alter the energy flux dynamics of the area. Within natural ecosystems, vegetation reduces heat capture and storage in soils (orange arrows), and infiltrated water and vegetation release heat-dissipating latent energy fluxes in the transition of water-to-water vapor to the atmosphere through evapotranspiration (blue arrows). These latent heat fluxes are dramatically reduced in typical PV installations, leading to greater sensible heat fluxes (red arrows). Energy re-radiation from PV panels (brown arrow) and energy transferred to electricity (purple arrow) are also shown.

Full size image

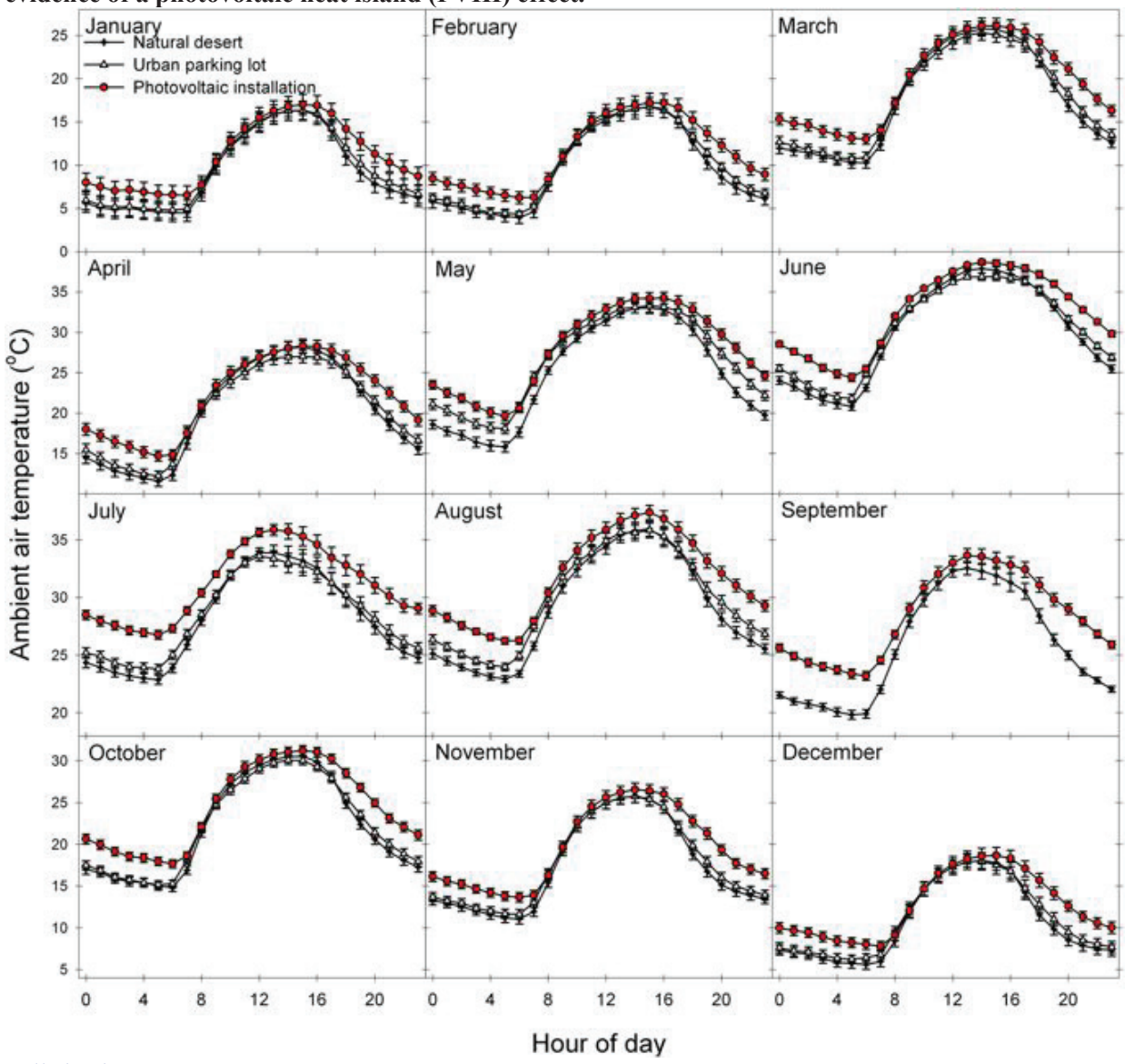
We addressed the paucity of direct quantification of a PVHI effect by simultaneously monitoring three sites that represent a natural desert ecosystem, the traditional built environment (parking lot surrounded by commercial buildings), and a PV power plant. We define a PVHI effect as the difference in ambient air temperature between the PV power plant and the desert landscape. Similarly, UHI is defined as the difference in temperature between the built environment and the desert. We reduced confounding effects of variability in local incoming energy, temperature, and precipitation by utilizing sites contained within a 1 km area.

At each site, we monitored air temperature continuously for over one year using aspirated temperature probes 2.5 m above the soil surface. Average annual temperature was 22.7 + 0.5 °C in the PV installation, while the nearby desert ecosystem was only 20.3 + 0.5 °C, indicating a

PVHI effect. Temperature differences between areas varied significantly depending on time of day and month of the year (Fig. 2), but the PV installation was always greater than or equal in temperature to other sites. As is the case with the UHI effect in dryland regions, the PVHI effect delayed the cooling of ambient temperatures in the evening, yielding the most significant difference in overnight temperatures across all seasons. Annual average midnight temperatures were 19.3 + 0.6 °C in the PV installation, while the nearby desert ecosystem was only 15.8 + 0.6 °C. This PVHI effect was more significant in terms of actual degrees of warming (+3.5 °C) in warm months (Spring and Summer; Fig. 3, right).

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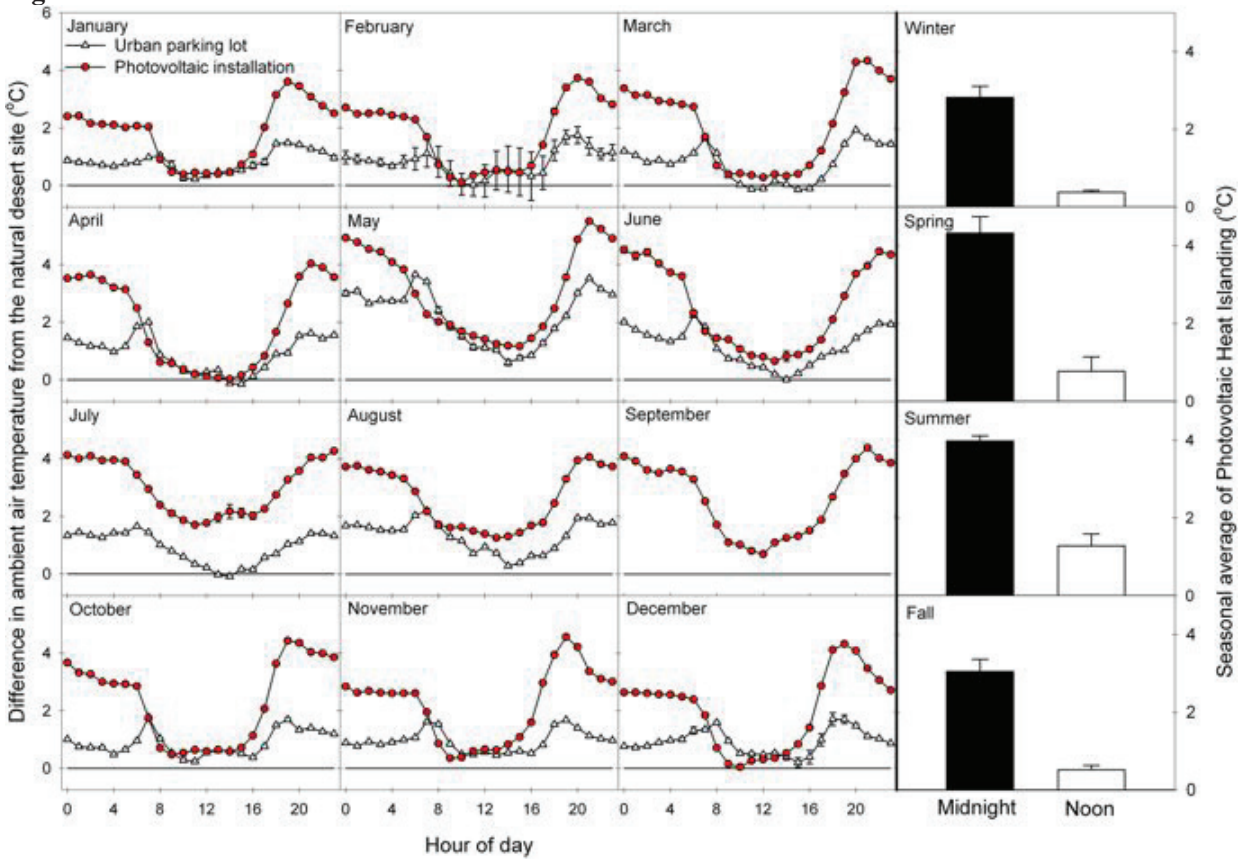
Figure 2: Average monthly ambient temperatures throughout a 24-hour period provide evidence of a photovoltaic heat island (PVHI) effect.



Full size image

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Figure 3



(Left) Average monthly levels of Photovoltaic Heat Islanding (ambient temperature difference between PV installation and desert) and Urban Heat Islanding (ambient temperature difference between the urban parking lot and the desert). (Right) Average night and day temperatures for four seasonal periods, illustrating a significant PVHI effect across all seasons, with the greatest influence on ambient temperatures at night.

Full size image

In both PVHI and UHI scenarios, the greater amount of exposed ground surfaces compared to natural systems absorbs a larger proportion of high-energy, shortwave solar radiation during the day. Combined with minimal rates of heat-dissipating transpiration from vegetation, a proportionally higher amount of stored energy is reradiated as longwave radiation during the night in the form of sensible heat (Fig. 1)[15]. Because PV installations introduce shading with a material that, itself, should not store much incoming radiation, one might hypothesize that the effect of a PVHI effect would be lesser than that of a UHI. Here, we found that the difference in evening ambient air temperature was consistently greater between the PV installation and the desert site than between the parking lot (UHI) and the desert site (Fig. 3). The PVHI effect caused ambient temperature to regularly approach or be in excess of 4 °C warmer than the natural desert in the evenings, essentially doubling the temperature increase due to UHI

5

measured here. This more significant warming under the PVHI than the UHI may be due to heat trapping of re-radiated sensible heat flux under PV arrays at night. Daytime differences from the natural ecosystem were similar between the PV installation and urban parking lot areas, with the exception of the Spring and Summer months, when the PVHI effect was significantly greater than UHI in the day. During these warm seasons, average midnight temperatures were 25.5 + 0.5 °C in the PV installation and 23.2 + 0.5 °C in the parking lot, while the nearby desert ecosystem was only 21.4 + 0.5 °C.

The results presented here demonstrate that the PVHI effect is real and can significantly increase temperatures over PV power plant installations relative to nearby wildlands. More detailed measurements of the underlying causes of the PVHI effect, potential mitigation strategies, and the relative influence of PVHI in the context of the intrinsic carbon offsets from the use of this renewable energy are needed. Thus, we raise several new questions and highlight critical unknowns requiring future research.

What is the physical basis of land transformations that might cause a PVHI?

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We hypothesize that the PVHI effect results from the effective transition in how energy moves in and out of a PV installation versus a natural ecosystem. However, measuring the individual components of an energy flux model remains a necessary task. These measurements are difficult and expensive but, nevertheless, are indispensable in identifying the relative influence of multiple potential drivers of the PVHI effect found here. Environmental conditions that determine patterns of ecosystem carbon, energy, and water dynamics are driven by the means through which incoming energy is reflected or absorbed. Because we lack fundamental knowledge of the changes in surface energy fluxes and microclimates of ecosystems undergoing this land use change, we have little ability to predict the implications in terms of carbon or water cycling[4,8].

What are the physical implications of a PVHI, and how do they vary by region?

The size of an UHI is determined by properties of the city, including total population[26,27,28], spatial extent, and the geographic location of that city[29,30,31]. We should, similarly, consider the spatial scale and geographic position of a PV installation when considering the presence and importance of the PVHI effect. Remote sensing could be coupled with ground-based measurements to determine the lateral and vertical extent of the PVHI effect. We could then determine if the size of the PVHI effect scales with some measure of the power plant (for example, panel density or spatial footprint) and whether or not a PVHI effect reaches surrounding areas like wildlands and neighborhoods. Given that different regions around the globe each have distinct background levels of vegetative ground cover and thermodynamic patterns of latent and sensible heat exchange, it is possible that a transition from a natural wildland to a typical PV power plant will have different outcomes than demonstrated here. The

paucity in data on the physical effects of this important and growing land use and land cover change warrants more studies from representative ecosystems.

What are the human implications of a PVHI, and how might we mitigate these effects?

With the growing popularity of renewable energy production, the boundaries between residential areas and larger-scale PV installations are decreasing. In fact, closer proximity with residential areas is leading to increased calls for zoning and city planning codes for larger PV installations[32,33], and PVHI-based concerns over potential reductions in real estate value or health issues tied to Human Thermal Comfort (HTC)[34]. Mitigation of a PVHI effect through targeted revegetation could have synergistic effects in easing ecosystem degradation associated with development of a utility scale PV site and increasing the collective ecosystem services associated with an area[4]. But what are the best mitigation measures? What tradeoffs exist in terms of various means of revegetating degraded PV installations? Can other albedo modifications be used to moderate the severity of the PVHI?

To fully contextualize these findings in terms of global warming, one needs to consider the relative significance of the (globally averaged) decrease in albedo due to PV power plants and their associated warming from the PVHI against the carbon dioxide emission reductions associated with PV power plants. The data presented here represents the first experimental and empirical examination of the presence of a heat island effect associated with PV power plants. An integrated approach to the physical and social dimensions of the PVHI is key in supporting decision-making regarding PV development.

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Methods

Site Description

We simultaneously monitored a suite of sites that represent the traditional built urban environment (a parking lot) and the transformation from a natural system (undeveloped desert) to a 1 MW PV power plant (Fig. 4; Map data: Google). To minimize confounding effects of variability in local incoming energy, temperature, and precipitation, we identified sites within a 1 km area. All sites were within the boundaries of the University of Arizona Science and Technology Park Solar Zone (32.092150°N, 110.808764°W; elevation: 888 m ASL). Within a 200 m diameter of the semiarid desert site's environmental monitoring station, the area is composed of a sparse mix of semiarid grasses (*Sporobolus wrightii, Eragrostis lehmanniana*, and *Muhlenbergia porteri*), cacti (*Opuntia* spp. and *Ferocactus* spp.), and occasional woody shrubs including creosote bush (*Larrea tridentata*), whitethorn acacia (*Acacia constricta*), and velvet mesquite (*Prosopis velutina*). The remaining area is bare soil. These species commonly co-occur on low elevation desert bajadas, creosote bush flats, and semiarid grasslands. The photovoltaic installation was put in place in early 2011, three full years prior when we initiated monitoring at the site. We maintained the measurement installations for one full year to capture seasonal variation due to sun angle and extremes associated with hot and cold periods. Panels rest on a

single-axis tracker system that pivot east-to-west throughout the day. A parking lot with associated building served as our "urban" site and is of comparable spatial scale as our PV site.

Figure 4: Experimental sites. Monitoring a (1) natural semiarid desert ecosystem, (2) solar (PV) photovoltaic installation, and (3) an "urban" parking lot – the typical source of urban heat islanding – within a 1 km^2 area enabled relative control for the incoming solar energy, allowing us to quantify variation in the localized temperature of these three environments over a year-long time period.



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The Google Earth image shows the University of Arizona's Science and Technology Park's Solar Zone.

Full size image

Monitoring Equipment & Variables Monitored

Ambient air temperature (°C) was measured with a shaded, aspirated temperature probe 2.5 m above the soil surface (Vaisala HMP60, Vaisala, Helsinki, Finland in the desert and Microdaq U23, Onset, Bourne, MA in the parking lot). Temperature probes were cross-validated for precision (closeness of temperature readings across all probes) at the onset of the experiment. Measurements of temperature were recorded at 30-minute intervals throughout a 24-hour day. Data were recorded on a data-logger (CR1000, Campbell Scientific, Logan, Utah or Microstation, Onset, Bourne, MA). Data from this instrument array is shown for a yearlong period from April 2014 through March 2015. Data from the parking lot was lost for September 2014 because of power supply issues with the datalogger.

Statistical analysis

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Monthly averages of hourly (on-the-hour) data were used to compare across the natural semiarid desert, urban, and PV sites. A Photovoltaic Heat Island (PVHI) effect was calculated as differences in these hourly averages between the PV site and the natural desert site, and estimates of Urban Heat Island (UHI) effect was calculated as differences in hourly averages between the urban parking lot site and the natural desert site. We used midnight and noon values to examine maximum and minimum, respectively, differences in temperatures among the three measurement sites and to test for significance of heat islanding at these times. Comparisons among the sites were made using Tukey's honestly significant difference (HSD) test[35]. Standard errors to calculate HSD were made using pooled midnight and noon values across seasonal periods of winter (January-March), spring (April-June), summer (July-September), and fall (October-December). Seasonal analyses allowed us to identify variation throughout a yearlong period and relate patterns of PVHI or UHI effects with seasons of high or low average temperature to examine correlations between background environmental parameters and localized heat islanding.

Additional Information

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35-9
Cont'd

Contributions

G.A.B.-G., R.L.M. and N.A.A. established research sites and installed monitoring equipment. G.A.B.-G. directed research and R.L.M. conducted most site maintenance. G.A.B.-G., N.A.A., A.D.C. and M.A.P.-Z. led efforts to secure funding for the research. All authors discussed the results and contributed to the manuscript.

Competing interests

The authors declare no competing financial interests.

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Subjects

- Environmental impact
- Renewable energy

35-9
Cont'd

34-6

Comment Summary:

This comment is a footer to Response 34-5.

Response:

Please refer to Response 34-5.

35 PAUL DEEL

April 29, 2019

35-1

Comment Summary:

This comment provides two attachments on the heat island effects.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

35-2

Comment Summary:

This comment provides an introduction to the author's past comments regarding the heat island effect caused by solar generation facilities. The commenter states that the EIR should have addressed the heat island effect within the EIR.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

35-3

Comment Summary:

This comment states that the project will create a local heat island that in turn will decrease the amount of rain in the Mojave Valley, therefore increasing drought and desertification. The comment cites literature from 2007.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

35-4

Comment Summary:

This comment cites a 2016 study that found a correlation between desert solar energy facilities and ambient temperature. The comment implies that the project will increase the ambient temperature of the nearby area.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

35-5

Comment Summary:

This comment states that the adjacent neighborhood will be impacted by the local heat island effect. The comment describes the physical impact that the local residents will experience, and discusses land values, physical comfort, and health. The comment concludes by stating that the literature shows that the heat island will have a significant impact.

Response:

Please refer to Response 26B-44 regarding the heat island effect. Economic and social effects of the project are presented consistent with the guidance provided in Section 15131 of the CEQA Guidelines which states that economic or social effects of a project shall not be treated as significant effects on the environment, and the focus of the analysis shall be on the physical changes.

35-6

Comment Summary:

This comment suggests that the impacts of the heat island effect on nearby residents may be mitigated using the Reduced Footprint Alternative.

Response:

Please refer to Response 26B-44 regarding the heat island effect.

Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project. No further response is required.

35-7

Comment Summary:

This comment provides citations for the studies referenced earlier in the letter.

Response:

Comment noted. The comment does not address the adequacy of the EIR or raise any new environmental issues that can be specifically addressed in this response.

35-8

Comment Summary:

This comment is the entire article titled Water for the Recovery of the Climate – A New Water Paradigm.

Response:

Comment noted. The comment does not address the adequacy of the EIR or raise any new environmental issues that can be specifically addressed in this response.

35-9

Comment Summary:

This comment is the entire article titled The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures.

Response:

Comment noted. The comment does not address the adequacy of the EIR or raise any new environmental issues that can be specifically addressed in this response.

April 27, 2019

County of San Bernardino
Land Use Services Department
Tom Nievez, Contract Planner
Tom.Nievez@lus.sbcounty.gov
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415

Subject: Daggett Solar Power Facility (State Clearinghouse No. 2018041007)

Dear Mr. Nievez:

As a resident of Newberry Springs since 1980, I have the following comments on the EIR.

36-1 1. Although the community of Newberry Springs is the most affected community of the Daggett Solar Power Facility it is not significantly regarded in this EIR.

36-2 2. **Section 3.14 Effects found not to be significant; Population and Housing; Fire Protection** It says, "*Fire protection services for the project area are provided by the Daggett Fire Department. The department's fire station is approximately 1.5 miles to the west of the project site at 33702 Second Street in Daggett. Additionally, the Barstow Fire Protection District station is approximately 12 miles west of the project site at 861 Barstow Road in Barstow and would be available to back up the Daggett Fire Department if necessary.*" By ignoring Newberry Springs, this assessment is incomplete, therefore false and should be corrected, for the following reason. **Phase 3 of this project is totally in the community of Newberry Springs and served by the Newberry Springs Volunteer Fire Dept., not the Daggett Volunteer Fire Dept.** The Newberry Springs Volunteer Fire Dept. is approximately 6 miles east of Mineola road and Silver Valley Rd.

This brings up a significant question. If the Public Safety Services Impact Fees are paid as if in the Daggett CSD area, excluding Newberry Springs, what is the process to assure the Newberry Springs CSD receives its fair share?

36-3 3. **Costs:** County will lose tax dollars as value of surrounding homes decrease. Increase in road maintenance. Few if any local jobs created; 25+/- jobs lost. No increase in property tax on Project land. Losses of view scape as arrays proposed are 15-20 feet. Since Newberry CSD depends on Property Taxes, we could see a decline in our income which would affect our ability to provide services to our community.

36-4 4. Section 4.0 Alternatives to the Proposed Project: The new building standards set by the California Energy Commission (CEC), take effect on Jan. 1, 2020 and are predicted to add 200 MW's of distributed PV in California per year. It is better to produce solar energy at the site where it is used rather than transporting it hundreds of miles.

36-5 I do agree with the concerns from Paul Deel, Vickie Paulsen, Virginia Padilla, Ronnie Shaw, Pat Flanagan, and Brian Fisher.

Paula Deel
sweetrockhomestead@earthlink.net

36 PAULA DEEL

36-1

Comment Summary:

This comment states that Newberry Springs is the most affected by the EIR but is not significantly regarded in the EIR.

Response:

Comment noted. This comment does not provide specific environmental concerns in Newberry Springs that can be specifically addressed in this response.

36-2

Comment Summary:

The commenter asks whether the Newberry Springs CSD would receive public service impact fees.

Response:

Refer to Response 6-3 regarding public service impact fees.

36-3

Comment Summary:

The comment states that the County would lose tax dollars as a result of this project.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

36-4

Comment Summary:

This comment states that new building standards set by the California Energy Commission is predicted to add approximately 200 MW of distributed solar in California per year.

Response:

Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues. The new California Building Standards require new residential buildings to include solar panels. There is no evidence that the requirement for solar panels would reduce the need for utility scale solar power. Furthermore, both residential and utility

scale solar power can be integrated into the state's energy mix together to reduce reliance on greenhouse-gas emitting energy sources.

Refer to Response 33-1.

36-5

Comment Summary:

This comment states that the commenter agrees with other commenters.

Response:

Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues that can specifically be addressed in this response.

April 25, 2019

Hello,

37-1 My name is Butch Farrington. I have been a resident of Newberry Springs for 22½ years. I love my little community because it is a beautiful rural community that has great opportunities for children to learn about farming. I moved out here so as to have the rural culture and farming life surrounding me. I do realize it is a severely disadvantaged

37-2 community and I worry that the construction of the Daggett Solar Project(s) might make my community even more disadvantaged. I would like to take this opportunity to address a few of my concerns, in referencing the County of San Bernardino's Draft EIR that pertains to the Daggett Solar Project(s).

37-3 I appreciate your time and review of my letter.

Thank You

Appendix B-1 Visual Impact Assessment

37-4 In removing the natural plant life IE; creosotes for one you are disrupting the natural ecosystem these plants create not to mention the housing of small wildlife. Our alfalfa farmers which have served our community for decades and have

37-5 provided a high quality feed for livestock, will be greatly impacted by the Solar Project. Yet another impact not accounted for in this report.

Appendix D-1 Air Quality Technical Report

37-6 One has to only drive by the 22 acre abandoned solar project on Mt.View in Newberry Springs and see the damaging affects the blowing sand created for downwind residents. Mona Doles has fought this hazard continuously (piles of sand building up, plant life dying off, respiratory issues for livestock and residents) If 22 acres can create such havoc gosh let's all imagine what 3500 acres can do then throw in one of the high deserts' 40 to 50 mile an hour winds. Visibility gone, groomed yards gone, livestock impacted and yes residents hiding in their homes hoping someone will dig them

37-7 out afterwards. It does not appear your list of mitigation measure allow for the capture of blowing sand regardless of how tall a fence you build or how large the air filters you install. There is no amount of mitigation that will control the fugitive dust. There is plenty of land southeast or south of Daggett/Newberry Springs in which this project could be placed that will not impact communities and the citizens.

Appendix E- 3 Desert Tortoise Pre-Project Survey Report

37-8 In the event a desert tortoise is discovered we will halt any and all job site work to call the California Department of Fish and Wildlife so they may advise/remove/relocate desert tortoise. You should ask the military at Ft. Irwin what great lengths they had to go through to re-route an existing road without disturbing, distrusting or endangering the desert tortoise and by golly they did. Have rules relaxed that much or has the desert tortoise taken a back seat to "progress"? This theory applies to the burrowing owl(s). February to September they cannot be disturbed after that they are

37-9 relocated – owls have a tendency to return to their burrows what mitigation is planned for that action. The kit foxes of our area thrive in the area in question, great sources of food and water. Is the plan to dump them somewhere that doesn't support their needs like food and water. The following is the basis for the desert kit fox being put on the protected and endangered species list:

37-10 You can see the keyhole-shaped entrances of kit fox burrows scattered across a wide area of California's Mojave and Colorado deserts. But these wild-canine quarters are increasingly empty — or destroyed — due to large-scale industrial

37-10 Cont'd

energy development rapidly on the rise across the kit fox range. Even smart, climate-saving clean-energy development like solar projects are often badly sited and destroy important kit fox habitat — and also, possibly, help spread kit fox-killing diseases like canine distemper: In Riverside County in 2011 and 2012, the first-ever documented outbreak of the disease in desert kit fox caused a local die-off when it hit desert kit foxes in an area surrounding the Genesis Solar energy development site. Other threats to the foxes abound, including grazing, urbanization, agriculture, climate change and mortality from vehicles on roads that are increasingly crisscrossing their range — as well as off-road vehicles that drive over dens, potentially causing cave-ins that crush kit fox pups.

To defend the desert kit fox and its dry, scrubby, but ecologically vital habitat, in March 2013 the Center petitioned California to protect the desert kit fox as threatened under the California Endangered Species Act. State protection would afford this cute, keystone creature a better chance at surviving the California energy-development boom.

Appendix F-1 – Cultural Resource Inventory

37-11 It is stated that this is CONFIDENTIAL APPENDIX – NOT AVAILABLE FOR PUBLIC REVIEW- this is very alarming since transparency is key to these proceedings and documents. Why would any prehistoric or historic remains or indicators of past human activities be NOT AVAILABLE FOR PUBLIC REVIEW?

Appendix G – Preliminary Geotechnical Engineering Report

37-12 3.6-2 "would the project result in substantial soil erosion or the loss of top soil" Have none of the individuals involved in the EIR Draft for Daggett Solar 1 been to Mona Doles residence? Have they not seen the significant disturbance of top soil and extreme loss of top soil. To say that it is less than significant is just a bold lie.

Appendix I-3 – Water Supply Assessment

37-13 Owens Valley and Mulholland should come to mind here. The uniqueness of the Mojave River is it runs uphill and the downhill Mulholland's have dammed and tapped into our main water vein. You have agencies like the Water Masters saying WE use too much of their water. Which I STILL can't believe that they don't understand we are at the END of the water supply. We can't take water away from people upstream. They are already depleting our supply. I just paid $20,000 for a new well due to my well going dry. If this Solar Project is put in, not only will my well go dry, again, but many, many others will too.

37-14 I realize that our farmers use water. The water they use goes into producing a much needed product and some of it does go back into the ground. They also pay taxes that go to the community, they provide a product that is used locally and in local feed stores which again creates taxes. You can't tell me the residents of Owen's Valley would have approved the water depletion if they had a say in their water being depleted. We, the residents of Newberry Springs and Daggett do have a say, NO MORE.

37-15 Last but not least may we please enforce San Bernardino County Policy 4.1 - Solar Projects that do not reduce local residents' electric bill or even stay in the state to lower a neighboring community's electric bill just isn't smart.

Look past the revenue that can be gained and seriously put the people of these communities into consideration.

Thank you.

37 BUTCH FARRINGTON

37-1

Comment Summary:

This comment provides an introductory statement to the letter.

Response:

Comment noted. This comment does not address adequacy of the EIR under CEQA or raise any new environmental issues that can specifically be addressed in this response.

37-2

Comment Summary:

This comment states that the project may make the community even more disadvantaged.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

37-3

Comment Summary:

This comment thanks the County for the opportunity to comment on the letter.

Response:

Comment noted for the record. The comment does not raise any specific environmental concerns nor address the adequacy of the EIR. No further response is required.

37-4

Comment Summary:

This comment states that there would be biological impacts due to the removal of natural plant life.

Response:

As described in Section 3.4 of the EIR, the project applicant conducted site-specific biological studies to characterize the wildlife and vegetative conditions present at the project site. Further, as stated under Impact 3.4-1 of the EIR, no special-status plant species were observed within the proposed development footprint on the project site. Therefore, no direct or indirect impacts are anticipated and all biological impacts would be reduced to a less than significant level with

mitigation. The commenter does not provide evidence to support the claim that findings in the EIR regarding plants are incorrect which can be specifically addressed in this response.

37-5

Comment Summary:

The comment states that alfalfa farmers will be impacted by the project.

Response:

Conversion of farmland to non-agricultural use is discussed in Impact 3.2-1 beginning on page 3.2-8 of the EIR. The impact is determined to be less than significant. The comment does not provide additional, specific information on how the project would impact alfalfa farmers that can be addressed in this response.

37-6

Comment Summary:

This comment references impacts from blowing sands that occurred at another solar project on Mt. View in Newberry Springs. The commenter states that the impacts of the proposed project would be greater because the project footprint is 3,500 acres instead of 22 acres.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust.

37-7

Comment Summary:

This comment states that the mitigation measures listed in the EIR would not adequately mitigate blowing dust and sands.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust.

37-8

Comment Summary:

This comment discusses mitigation measures regarding desert tortoise.

Response:

Please refer to Responses 2A-6 through 2A-8 regarding desert tortoise impacts and mitigation measures.

37-9

Comment Summary:

This comment states that burrowing owls have a tendency to return to their previous burrows after they have been relocated. The commenter asks if there is mitigation for when they potentially return.

Response:

Please refer to Responses 2A-17 through 2A-19 regarding burrowing owl impacts and mitigation measures.

37-10

Comment Summary:

This comment states that desert kit fox thrives within the project area. The commenter then cites text on why the desert kit fox was placed on the endangered species list.

Response:

Please refer to Response 2A-19 and 2A-20 regarding potential desert kit fox impacts and mitigation measures.

37-11

Comment Summary:

This comment questions why the Cultural Resource Inventory is confidential.

Response:

As the Cultural Resource Inventory contains sensitive material such as the location of identified cultural and tribal cultural resources, the report is kept confidential to protect the sensitive resources from exploitation by "treasure hunters." A licensed archaeologist on the County approved list may review the report in its entirety at the County office.

37-12

Comment Summary:

The comment expresses disagreement with the conclusion that there would be substantial erosion or loss of top soil as a result of the project.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust. As stated in the discussion associated with Impact 3.9-3 on page 3.9-27 of the DEIR, the project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or

off-site erosion. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are incorrect which can be specifically addressed in this response. Please refer to Master Response 1 for more information on air quality impacts and analyses and Master Response 8 regarding windblown dust.

37-13

Comment Summary:

This comment states that the project would have an impact on local groundwater supplies and make his well run dry.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2, beginning on page 3.9-15 of the EIR. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Comments to Letter 3 (Watermaster letter).

37-14

Comment Summary:

This comment states the residents of Newberry Springs and Daggett have a say on water supplies.

Response:

The comment does not raise any specific environmental concerns nor address the adequacy of the EIR that can be specifically addressed in this response.

37-15

Comment Summary:

This comment states that the project must comply with San Bernardino County Policy 4.1.

Response:

Section 3 of Resolution No. 2019-17 of the Amendment of the Renewable Energy and Conservation Element of the General Plan, adopted by the Board of Supervisors on February 28, 2019, stipulates that "any application for development of a renewable energy generation project that has been accepted as complete in compliance with California Government Code Section 65943 before the effective date of this Resolution shall be processed in compliance with the policies and regulations in effect at the time the application was accepted as complete." The application for the Daggett Solar Power Facility was deemed complete on March 22, 2018 and thus the pre-amendment policies and regulations apply to the project.

Regardless, the project is consistent with many of the policies contained in the RECE, including that it is located primarily on disturbed land, adjacent to existing utility infrastructure, near existing industrial development including an airport and utility-scale solar, and is not within an adopted Community Plan area. Tables 3.10-2 and 3.10-3 in the EIR summarize the project's consistency with these policies.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Friday, April 26, 2019 4:58 PM
To: Nievez, Tom
Subject: Sch No. 2018041007

Country of San Bernardino, Land Use Services Depart
Tom Nievez, Contact Planner
Tom.Nievez@lus.sbcounty.gov
Re: Daggett Solar Power Facility
Draft Environment Impact Report
Sch No. 2018041007

Please find included comments on the errors and omissions in this report.

38-1 Section 3.12 Transportation and traffic:

During construction commute traffic on existing roads would increase by up to 500 round trips per day this is significant as it is an increase of 155% to 881% and increase the LOS to LOS B on several roads. Therefore the current EIR is incorrect and must be corrected.

38-2 Suggest that this could be negated by NRG providing free to construction workers non-polluting mandatory transportation, LPG or Electric Buses, from Barstow and other cities as required. This would maintain the commute traffic to LOS A.

38-3 Increased traffic both commute and construction equipment will cause extensive wear and damage to existing roads which is not addressed in the IRA. This will cause an unsafe and costly condition to the local communities to occur. The EIR doesn't address this and therefore is incomplete and must be included into TR-1.

Suggest that NRG be required to repair roads at their expense both during and after the construction and must be included in TR-1

38-4 The project also appears to violate Country General Plan D/CI 1.1. Therefore a legal opinion on this must be obtained before the EIR can to approved.

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

1

38 BRIAN FISHER

38-1

Comment Summary:

This comment states that project construction would result in up to 500 round trips per day which would decrease level of service (LOS) to LOS B on several roads.

Response:

Please refer to Response 6-17 regarding transportation impacts related to construction. No further response is required.

38-2

Comment Summary:

This comment suggests that the County should provide buses to transport the construction workers to the site from Barstow and other surrounding area to maintain LOS A.

Response:

Please refer to Response 6-17 regarding transportation impacts related to construction. Transportation impacts are effectively mitigated through implementation of **TRA-1**.

38-3

Comment Summary:

This comment states that the EIR does not contain information on the damage and cost to repair local roadways as a result of additional trucks on the roads during construction.

Response:

The EIR is not required to evaluate long- and short-term economic effects of the project on the local roadway system. This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues that can be addressed in this response.

38-4

Comment Summary:

This comment states that the project is in violation of County General Plan D/CI 1.1.

Response:

County General Plan D/CI 1.1 states, "The County shall ensure that all new development proposals do not degrade Levels of Service (LOS) on Major Arterials below LOS C in the Desert Region." As stated in the discussion associated with Impact 3.12-7 of the EIR, analysis revealed that the roadways within the project vicinity would continue to operate at LOS A with the addition of project-related construction traffic. Therefore, major arterials would not be decreased below LOS C and the project is consistent with County General Plan D/CI 1.1.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Friday, April 26, 2019 5:03 PM
To: Nievez, Tom
Subject: Draft Environment Impact Report Sch No. 2018041007

Country of San Bernardino, Land Use Services Depart
Tom Nievez, Contact Planner
Tom.Nievez@lus.sbcounty.gov
Re: Daggett Solar Power Facility
Draft Environment Impact Report
Sch No. 2018041007

Please find included comments on the errors and omissions in this report.

Section 3.3 Air Quality

39-1 Per the EIR the closest ambient air quality monitoring station to the project site that monitors ozone and airborne particulates is the Barstow monitoring station approximately 11.7 miles to the west of the project site.

However the prevailing winds in the project area are from the west per appendix D2 of the EIR. Therefore the any data generated by the Barstow monitoring station is of no value as it does not monitor the area most affected, east of the site. Thus the EIR is without any true data as to the air quality of the true affected areas. In order for the EIR to address this as it must, air quality monitoring in multiple locations to the east must be done before the EIR can be approved and must include a long enough time frame to achieve true and accurate data.

39-2 Without a DCP it is impossible to determine how the air quality from the project will be so that EIR cannot be complete without it.

39-3 In appendix D2 page 11 Wind Screens. Current verbiage "Wind screens can be deployed where wind barrier fencing proves inadequate…" must be corrected to "Wind screens will be deployed where wind barrier fencing proves inadequate…" to address an EIR recognized problem. This correction must also be included in any other sections of the EIR where this error occurs.

39-4 The DCC should be the MDAQMD to remove any bias. The funding source for the MDAQMD to perform this task should be NRG or the current operator of the plant and continue for the life of the plant.

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

39 BRIAN FISHER

39-1

Comment Summary:

This comment states that the Barstow monitoring station is inadequate due to wind patterns and distance from the site. The commenter states that the air quality monitoring stations must be installed to the east for a long enough time to create a baseline before the project can be approved.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, in the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Also, please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

39-2

Comment Summary:

The commenter states that is impossible to determine air quality impacts "without a DCP."

Response:

It is assumed that the DCP referenced in this comment refers to a Dust Control Plan (DCP). Mitigation measure **AIR-3** requires the development of a DCP prior to issuance of grading permits. Please refer to Response 25-2.

39-3

Comment Summary:

This comment states that the verbiage in **Appendix D-2** should be changed.

Response:

Technical appendices are important reference documents for the EIR analysis, but it is not required that all recommended measures be incorporated into the EIR analysis. The mitigation measures presented in the EIR are binding, while the technical reports may present recommendations that are not necessarily carried forward as mitigation requirements verbatim.

39-4

Comment Summary:

The commenter states that "the DCC should be the MDAQMD to remove bias" and that funding for the task should come from NRG or the current operator of the plant for the life of the project.

Response:

The DCC, the Dust Control Coordinator, is present on the construction site on a daily basis and is the project applicant's representative responsible for overseeing compliance with the measures in the Dust Control Plan. The County is responsible for monitoring compliance with the mitigation measures, including the Dust Control Plan. The MDAQMD approves the Dust Control Plan and would respond to specific complaints regarding non-compliance with required dust control measures. Ultimately, if there are non-compliance issues on the site, the MDAQMD would likely participate in requiring corrective action.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Friday, April 26, 2019 5:06 PM
To: Nievez, Tom
Subject: Draft Environment Impact Report Sch No. 2018041007

SAME AS EMAIL FROM BRIAN FISHER DATED 4/26/2019 5:03 PM (See Letter 39)

Country of San Bernardino, Land Use Services Depart
Tom Nievez, Contact Planner
Tom.Nievez@lus.sbcounty.gov
Re: Daggett Solar Power Facility
Draft Environment Impact Report
Sch No. 2018041007

Please find included comments on the errors and omissions in this report.

Section 3.3 Air Quality

Per the EIR the closest ambient air quality monitoring station to the project site that monitors ozone and airborne particulates is the Barstow monitoring station approximately 11.7 miles to the west of the project site.

However the prevailing winds in the project area are from the west per appendix D2 of the EIR. Therefore the any data generated by the Barstow monitoring station is of no value as it does not monitor the area most affected, east of the site. Thus the EIR is without any true data as to the air quality of the true affected areas. In order for the EIR to address this as it must, air quality monitoring
40-1 in multiple locations to the east must be done before the EIR can be approved and must include a long enough time frame to achieve true and accurate data.

Without a DCP it is impossible to determine how the air quality from the project will be so that EIR cannot be complete without it.

In appendix D2 page 11 Wind Screens. Current verbiage "Wind screens can be deployed where wind barrier fencing proves inadequate…" must be corrected to "Wind screens will be deployed where wind barrier fencing proves inadequate…" to address an EIR recognized problem. This correction must also be included in any other sections of the EIR where this error occurs.

The DCC should be the MDAQMD to remove any bias. The funding source for the MDAQMD to perform this task should be NRG or the current operator of the plant and continue for the life of the plant.

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

40 BRIAN FISHER

40-1

Comment Summary:

This comment is a duplicate letter of Letter 39.

Response:

Please refer to Responses to Letter 39. No further response is required.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Friday, April 26, 2019 5:12 PM
To: Nievez, Tom
Subject: Draft Environment Impact Report Sch No. 2018041007

Country of San Bernardino, Land Use Services Depart
Tom Nievez, Contact Planner
Tom.Nievez@lus.sbcounty.gov
Re: Daggett Solar Power Facility
Draft Environment Impact Report
Sch No. 2018041007

Please find included comments on the errors and omissions in this report.

41-1 Section 3.14-2 Effects found not to be significant population and housing

Per the EIR the closest ambient air quality monitoring station to the project site that monitors ozone and airborne particulates is the Barstow monitoring station approximately 11.7 miles to the west of the project site. As such any data from this monitoring station is of no use as the prevailing winds are from the west.

41-2 Therefore the EIR's statement that:" the project would not require the removal of any existing housing or residents which are not affiliated with the project property" is not based on any science or facts and ignores the effect that airborne particulates will have on the neighborhoods that are in the area. These effects could include relocating many housing units to other areas.

41-3 Until true monitoring stations to the east of the project including neighborhoods close to the project are installed and monitored for a length of time to insure true data, the EIR is incomplete and must not be accepted.

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

41 BRIAN FISHER

41-1

Comment Summary:

This comment states that the air quality monitoring station used in the EIR is inadequate because the Barstow monitoring station is located to the west and prevailing winds in the area come from the west.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, of the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Also, please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

41-2

Comment Summary:

This comment expresses disagreement with the conclusion that the project would not require the removal of any existing housing or residents. The commenter states that airborne particulates from the project would force the relocation of housing units.

Response:

The commenter does not provide substantial evidence to support the claim that airborne particulates would force the relocation of housing units. As stated in Section 3.14, Effects Found Not to Be Significant; Population and Housing, the project would not require the removal of any existing housing or residents which are not affiliated with the project property, as the affected lands are undeveloped and no residential uses are present on-site who are not participating landowners in the project. Please refer to Master Response 1 for a complete response regarding air quality impacts and mitigation measures. Please refer to Master Response 8 regarding windblown dust.

41-3

Comment Summary:

The comment states that project should be rejected until air quality monitoring stations to the east are installed for a period long enough to develop a baseline.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, in the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Also, please refer to Master Response 4 for more information

on air quality monitoring stations and air quality analysis. Under CEQA, the Lead Agency has the discretion to approve or reject the proposed project. No further response is required.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Friday, April 26, 2019 5:21 PM
To: Nievez, Tom
Subject: Draft Environment Impact Report Sch No. 2018041007

Country of San Bernardino, Land Use Services Depart
Tom Nievez, Contact Planner
Tom.Nievez@lus.sbcounty.gov
Re: Daggett Solar Power Facility
Draft Environment Impact Report
Sch No. 2018041007

Please find included comments on the errors and omissions in this report.
Section 3.7 Greenhouse Gas Emissions (1)

42-1 During construction commute traffic on existing roads would increase by up to 500 round trips per day 5 days per week this is significant as it is an increase of 155% to 881%. This will increase greenhouse gas emissions. If all the commute traffic originated in Barstow about 11 miles away that would equal about 11,000 miles commuted per day for 920 days for the estimated construction period of a total of 10,280,000 miles.

The US Department of Energy has estimated that the average American automobile emits about 1 pound of greenhouse gases per mile. The construction would result in 10,280,000 pounds of greenhouse gas emissions.

42-2 Such an increase would hurt California from reaching the AB32 2020 deadline and may possibly violate County General Plan to reduce greenhouse gases by 15%.

As greenhouse gas emissions are a critical environmental issue any increase that should be avoided.

42-3 This could be negated by NRG providing free to construction workers non-polluting mandatory transportation, LPG or Electric Buses, from Barstow and other cities as required.

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

42 BRIAN FISHER

42-1

Comment Summary:

This comment states that construction traffic would contribute to greenhouse gas emissions.

Response:

Greenhouse gas emissions from construction worker vehicle trips were properly analyzed and included in the EIR. As stated in Section 3.7, Greenhouse Gas Emissions, for the purposes of determining whether GHG emissions from affected projects are adverse, the MDAQMD specifies that project emissions must include direct and indirect emissions during construction and operation. Construction activities evaluated as part of the greenhouse gas analysis include the use of heavy-duty construction equipment, material delivery trips, heavy-duty haul truck trips, and construction worker vehicle trips. The total exhaust emissions generated within each of the construction stages are listed in **Appendix D-2** (detailed description is found in Appendix A of the Air Quality Technical Report). Therefore, greenhouse gas emissions from construction traffic were properly included in the EIR. As stated in Impact 3.7-1, the project would not result in an impact because the total daily GHG emissions pounds per day would not exceed the MDAQMD's thresholds of 548,000 pounds per day.

42-2

Comment Summary:

This comment states that the greenhouse gas emissions from construction traffic would impact California's ability to reach the goals of AB 32.

Response:

Please refer to Response 42-1 above regarding greenhouse gas emissions from construction traffic. The purpose of the project is to provide renewable energy to assist California in reaching goals set for AB 32.

42-3

Comment Summary:

This comment states that the applicant could offset greenhouse gas emissions from construction traffic with non-polluting buses from Barstow and other surrounding cities.

Response:

Please refer to Response 42-1 above regarding greenhouse gas emissions from construction traffic.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Saturday, April 27, 2019 8:48 PM
To: Nievez, Tom
Subject: Draft Environment Impact Report Sch No. 2018041007

Country of San Bernardino, Land Use Services Depart
Tom Nievez, Contact Planner
Tom.Nievez@lus.sbcounty.gov
Re: Daggett Solar Power Facility
Draft Environment Impact Report
Sch No. 2018041007

Please find included comments on the errors and omissions in this report.

43-1 I agree with Victoria Paulsen posting at the enclosed link. Her finding are correct and point out some the many errors that must result in the rejection on this EIR. http://www.nseda.net/wp-content/uploads/2019/04/Final-Aesthetics-comment.pdf

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

See Letter 52.

Daggett EIR Comment, by Vickie Paulsen - Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

"HDR, Inc. was retained by NRG Renew, LLC to perform a Visual Impact Assessment (VIA) for the
43-2 Project. This VIA was prepared to identify and evaluate the potential visual and aesthetic impacts associated with construction and operation of this Project." [EIR, Pg 1]

The Corporations (HDR and NRG) have a lot of hubris, thinking they have the background, experience, and sensitivity to adequately assess the visual and aesthetic impacts of living in Newberry Springs. The results published are at complete odds with how residents and tourists feel about our community.

"sparsely spaced rural residential dwellings, previously disturbed and now fallow farmland, and some undeveloped desert land." [p. 11]

43-3 Words count; their meanings are exact. To characterize a virgin desert as "undeveloped" is aimed to put a negative impression in the reader. "Undeveloped" might imply that the land is useless because no-one has exploited it yet. People who live on small plots of ground or in high rises might look on our 10- to 80-acre parcels as land that only needs development to become meaningful.

43-4 Throughout the EIR, the chosen "researchers" HDR and Michael Bennett claim that the Project will not affect the Aesthetics and Visual Resources of Newberry Springs [EIR section 3.1; Appendices B-1, B-2]. My pictures will show the opposite, and that the Project flaunts the high standards approved by the County in 2014 and further attested to by recent the adoption RECE 4.10.

43-5 The first picture [Fig. 1] was taken at the corner of Minneola and Valley Center [KOP 5B], a location I pass several times almost every day. It is one of the busiest locations in Newberry Springs. The EIR simulation [Fig. 2] is completely wrong, showing the panels as half the size they will actually be and not impacting the view too much.

My simulation [Fig. 3] shows the actual impact of the Project at that corner. It is placed at exactly where the panels begin. (see Fig. 5)

43-6 **The Law of the County, the Development Code, in section 84.29.035 (a) states, "the Planning Commission shall . . . determine that the location of the proposed commercial solar energy facility . . . will not lead to loss of the scenic desert qualities that are key to maintaining a vibrant desert tourist economy by making each of the findings of fact in subdivision (c)."**



Fig.1

Page 2 - Daggett EIR Comment, by Vickie Paulsen - Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

43-7



Fig. 1

Above, Fig. 1. KOP 5b from EIR. Minneola & Valley Center with simulated solar panels. The panels are barely visible because the creators used a height of 10 ft instead of the actual height of 20 ft. Below, Fig. 2, is my simulation of the same spot. By the nearest panel, a man stands with a 10 ft pole for scale. This simulation is the actual way it would look if approved.

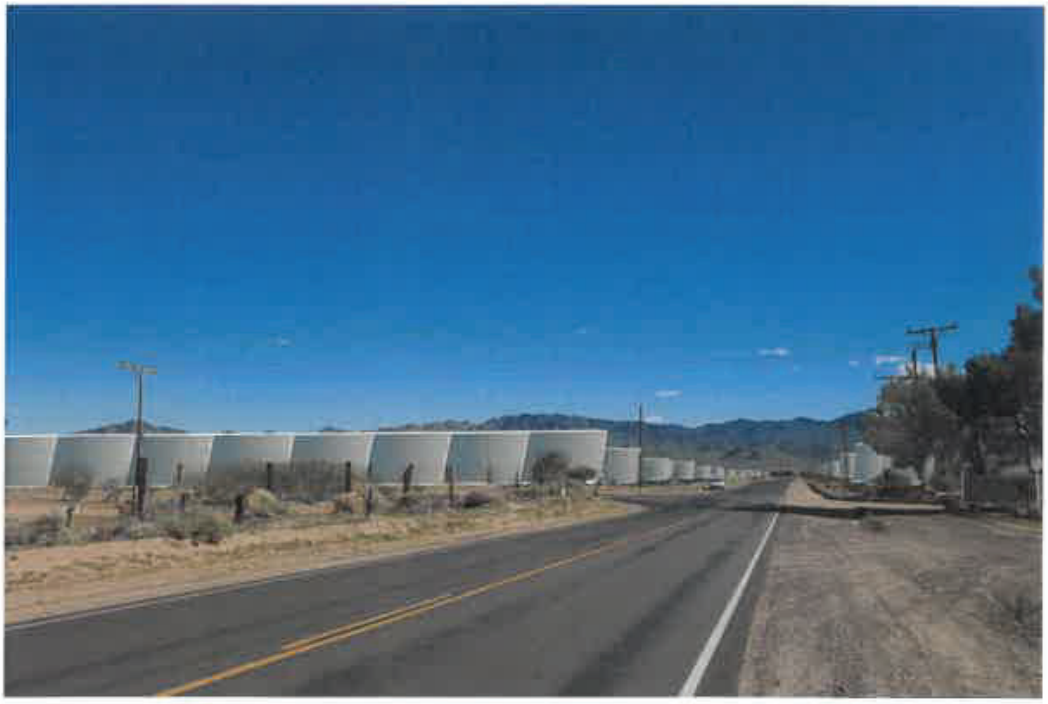


Fig. 2

Page 3 - Daggett EIR Comment, by Vickie Paulsen - Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

43-8 Page 2 should be as much proof as necessary to show that NRG and those hired by the County to do the EIR are not playing fair with our community and are, in fact, willing to break the law in order to put in their 750,000 solar panels.

Another obvious tactic was to choose Key Observation Points (KOPs) that are far from "key" for us. KOP 5a, for example, at Condor Road and Valley Center. Of course the photo shows nothing. There are berms in the way and the Project is about a mile to the west and south. As residents turn west onto Valley Center and drive toward Minneola, Fig. 3 is what they see now (note the man with the 10 ft pole), and Fig. 4 is what they and everyone traveling on Valley Center will see if the Project is approved.

43-9



Fig. 3



Fig. 4

43-10 KOP 2 (not shown in this Comment, but easily accessible in the EIR) is at the offramp at Hidden Sorings looking north. It is a beautiful view of desert and airport. There are color variations and certainly height variations, with the Calico Mountains in the background. The EIR simulation shows the extent of the panels, but at their chosen 10 ft height instead of the actual 20 ft height. That makes a big difference, especially when you remember how shiny metal and glass are, even if the panels are meant to absorb light.

The variations in desert colors, like an Impressionistic painting, would disappear in a monotone of bright silver for miles and miles.

Page 4 - Daggett EIR Comment, by Vickie Paulsen -
Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT
ANALYSIS
DEVELOPMENT CODE 84.29

43-11 I have an Air BnB that attracts many foreign and domestic visitors (tourists). Every single one of them has commented on how beautiful it is here with breathtaking longrange views of desert and mountains. Figure 3 demonstrates how completely the viewscape and ambience would be destroyed.

Section (c) lists the 31 findings of fact the Planning Commission must consider before approving a Project. I will highlight only a few, though I believe 2/3 of them are red lights to this solar development. Because I am concentrating on "Aesthetics and Visual Resources," I will confine my remarks to sections (1) and (2).

(1) The proposed commercial solar development facility is either:

43-12 **(A) sufficiently separated from existing communities and existing/developing rural residential areas so as to avoid adverse effects, or**

(B) of a sufficiently small size, provided with adequate setbacks, designed to be lower profile than otherwise permitted, and sufficiently screened from public view so as to not adversely affect the desirability and future development of communities, neighborhoods, and rural residential use.

(2) Proposed fencing, walls, landscaping, and other perimeter features of the proposed commercial solar energy generation facility will minimize the visual impact of the project so as to blend with and be subordinate to the environment and character of the area where the facility is to be located.

In judging (1)(A), the Commissioners will need to understand that environment of Newberry Springs is far different from anywhere else. This entire project affects us even if only a few square miles are inside our CSD boundaries.

43-13 "Approximately 100 rural residences are within 0.5 mile radius of the project site." [EIR p. 3.1-4] Families are moving in, expecting to develop their land into something lasting for generations. Residents on Chloride, Dogwood and Valley Center are aghast that their property values will hit bottom dramatically, leaving them with nothing. Their's aren't the only properties that will be affected. Newberry Springs in its entirety will be lost.

(1)(B), when applied to this proposed commercial solar energy generation facility, is laughable. The fact that NRG submitted its application in spite of knowing the County Law section 84.29, speaks to its deep pockets and self-righteous confidence. I will go through the items one by one:

"of a sufficiently small size." This will be the largest facility in the nation (until another one pops up somewhere). It is twice the size of the enormous facility at Kramer Junction. No way does "small" apply to this giant.

43-14 "provided with adequate setbacks." The setbacks are in accordance with law, but inadequate for our community because of the 20-ft height of the panels.

"designed to be lower profile than otherwise permitted." These are designed to be 20 ft high, as high as panels can go. The pictures provided on preceding pages should be sufficient evidence to squelch any attempt to justify this folly. I have more to say on this on pg. 5 and Fig. 5.

"sufficiently screened from public view etc." They are visible from every viewpoint. Only 20 ft high walls could screen them. Their chainlink fences will be 6 ft high.

Page 5 - Daggett EIR Comment, by Vickie Paulsen -
Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT
ANALYSIS
DEVELOPMENT CODE 84.29

(2) Proposed fencing, walls, landscaping, and other perimeter features of the proposed commercial solar energy generation facility will minimize the visual impact of the project so as to blend with and be subordinate to the environment and character of the area where the facility is to be located.

This possibility is not addressed in the EIR or in the project design because it is impossible to minimize the visual impact of this behemoth, or to make it blend with and be subordinate to the environment.

Let me quote what the EIR has to say:

43-15 "Impact 3.3-5. The project would not result in cumulative aesthetic impacts. Impacts would be less than significant." [EIR p. 3.1-62]

The EIR talks of "cumulative effects" that could occur "if viewers perceive that the general visual quality or landscape character of a regional area is diinished by the proliferation of visible similar structures or construction . . ." [EIR, p. 3.1-63]

This means that people like to see vistas that have a variety of shapes and tones, not miles upon miles of the same thing - 750,000 solar panels lined up row after row. The EIR recognizes this and dismisses it. I don't.

One more quote (though I could go on and on) that shows how ignorant the writers are about deserts.

43-16 "However, given the low scenic quality of the area based on the merous existing visual encroachments and the low to moderately low degree of visual change expected from the Minneola Solar Project, Solar 33 Project, Solar 66 Project [where did these designations come from? Did they forget who they are writing for?], and the proposed project, substantial cumulative damage to scenic resources within a state scenic highway is not anticipated. Cumulative impacts would be less than significant." [EIR p. 3.1-63-64]

And yet they do admit that there would be cumulative impacts from taking away the iconic views of deserts and mountain ranges and replacing them with miles and miles of solar panels.

Newberry Springs is not insignificant! Our way of life is to be envied, not slandered or buried under the sand caused by construction of this egregious commercial project.

43-17 Fig. 5 is from the EIR plan maps done by Bonadiman for NRG, Bennett, and HDR . It shows the height of the solar panels at 10 ft, which is probably why the photo simulations show 10 ft panels. Why all these corporations play such games, I cannot understand.

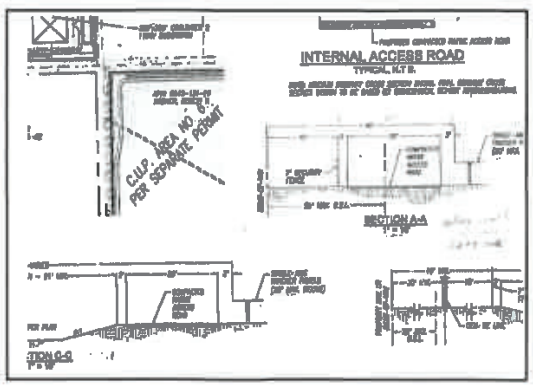


Fig. 5. . Area 5, Minneola east side.

43 BRIAN FISHER

43-1

Comment Summary:

The commenter states that he agrees with Victoria Paulson's letter (Letter 52). The commenter then provided a link to the article. The commenter also includes a version of Letter 52 with slight modifications.

Response:

This comment is introductory in nature. This comment does not challenge the adequacy of the EIR or address environmental issues that can be specifically addressed in this response.

43-2

Comment Summary:

The comment states that HDR and NRG are not qualified to adequately assess visual and aesthetic impacts in Newberry Springs.

Response:

See Response 52-5.

43-3

Comment Summary:

This comment disputes text in the EIR that describes the project site and surrounding areas.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

43-4

Comment Summary:

The comment expresses disagreement with the finding of no significance in Section 3.1, Aesthetics and Visual Resources. The comment states that the photos submitted as part of the letter demonstrate that there is a significant visual impact from the project. The comment then states that the project "flaunts the high standards written into law by the County in 2014" and conflicts with the RECE 4.10.

Response:

See Response 52-7.

43-5

Comment Summary:

This comment states that the visual simulations in the EIR are incorrect. The commenter provides a visual simulation that was created that the commenter states depicts the project more accurately.

Response:

See Response 52-11.

43-6

Comment Summary:

This comment cites text from the County Development Code, Section 84.29.035(a).

Response:

See Response 52-12.

43-7

Comment Summary:

This comment contains the two figures referenced in Comment 43-5.

Response:

See Response 52-13.

43-8

Comment Summary:

This comment states that NRG and those hired by the County are not playing fair with the community and are breaking the law.

Response:

The comment provides no evidence to support the claim that the County or the hired EIR consultants are biased and/or breaking the law nor does it address environmental issues that can be specifically addressed in this response.

43-9

Comment Summary:

See Response 52-23.

43-10

Comment Summary:

The comment expresses disagreement with the placement and depiction of KOP 2.

Response:

Please refer to Master Response 7 regarding the methods used to perform the visual analysis.

43-11

Comment Summary:

This comment states that the project would impact tourism in the area.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

43-12

Comment Summary:

The comment disputes that the project is of a sufficiently small size.

Response:

See Response 52-15.

43-13

Comment Summary:

This comment states that the entire project affects Newberry Springs residents even though only a few square miles are in the CSD boundary. This comment states that residents are concerned with potential loss of property value due to the project.

Response:

See Response 52-12 and 52-13.

43-14

Comment Summary:

The comment reiterates the previous comments that states that the project is not sufficiently small in size, designed at a low profile, and sufficiently screened from public view.

Response:

See Response 52-14 through 52-21.

43-15

Comment Summary:

This comment states that it is impossible to minimize visual impacts from the project.

Response:

See Response 52-19.

43-16

Comment Summary:

This comment states that the project would have a significant cumulative impact on the state scenic highway.

Response:

See Response 52-21.

43-17

Comment Summary:

This comment references an exhibit from the EIR that depicted the height of the solar panels at 10 feet. The commenter states that this is misleading.

Response:

See Response 52-26.

Nievez, Tom

From: Brian Fisher <olbrian47@yahoo.com>
Sent: Monday, April 29, 2019 12:38 PM
To: Nievez, Tom
Subject: Draft Environment Impact Report Sch No. 2018041007

44-1 Please find included comments on the errors and omissions in this report.
Impact 3.9 and Other CEQA Considerations; Significant and Unavoidable Impacts

Referencing Section 5.0 Other CEQA Considerations, beginning paragraph 4, page 5-4, impacts to groundwater supplies; because it concludes very briefly the argument in Section 3.9 concerning the potential water rights transfer from the west to the east side of the Calico-Newberry fault.

44-2 It says." Furthermore, impacts to groundwater supplies are considered significant and unavoidable given unknown future water pumping scenarios involving potential water rights transfer from the west to east side of the Calico-Newberry fault,..."
The key seems to be the argument that it cannot be known what the holders of those free pumping allowances will do with those assets.

An argument in favor of 'intent' to monetize their free pumping allowance assets are the significant loss of revenue should they choose not to use them.

44-3 If the estimated 7,657 acre feet of pumping rights were sold at $250.00 each, they would stand to earn $1,914,250.00
If the estimated 7,657 acre feet of pumping rights were rented for 1 year at $25.00 per acre feet, they would stand to earn $191,425.00 per year.
If the ramped down 7,657 acre feet of pumping rights are discounted to the 35% ramp down allowance, they would still earn $66,998.00 per year.

44-4 The threat to the populated east side water cannot be dismissed by claiming to not know what the holders of the free pumping allowance (FPA) will do; when the only responsible approach is by acknowledging that the most reasonable and probable 'intent' of those holding these assets is to monetize them if able.

There seems to me to be three mitigation avenues.
1. Deny the project
2. Require Clearway Energy Group, the applicant, to purchase equal amounts of FPA (7,657 ac ft.) from within the Baja Sub Area and retire them to the Mojave Water Agency or place them in a trust held by the Community Service Districts of
44-5 Daggett and Newberry Springs as a community benefit.
3. and/or, San Bernardino County and Land Use Services can reinstitute the San Bernardino County Water Conservation Ordinance they incorrectly dismissed it when the adjudication began. This, at least, would confine water transfers to existing uses and prohibit opening new or fallow fields, lakes or ponds.

Brian Fisher
46151 Silver Valley rd.
Newberry Springs, CA 92365
Olbrian47@Yahoo.com

44 BRIAN FISHER

44-1

Comment Summary:

This letter contains the same comments received in Letter 34.

Response:

Refer to Letter 34 for responses. No further response is required.

44-2

Comment Summary:

This comment references Section 5.0 and Section 3.9 of the EIR in regard to impacts to groundwater supplies from the transfer of water rights from the west to the east side of the Calico-Newbery fault.

Response:

Refer to Response 34-1 regarding impacts to groundwater.

44-3

Comment Summary:

This comment provides costs estimate for the free pumping allowance assets for different pumping scenarios.

Response:

Refer to Response 34-3 regarding impacts to groundwater.

44-4

Comment Summary:

This comment states that threats to the east side water cannot be dismissed because the “most reasonable and probably ‘intent’ of those holding these assets is to monetize them if able.”

Response:

Refer to Response 34-4 regarding impacts to groundwater.

44-5

Comment Summary:

This comment provides three mitigation options for the proposed project regarding groundwater impacts.

Response:

Refer to Response 34-5 regarding impacts to groundwater.

Gmail

Vickie Paulsen <words4fun@gmail.com>

Daggett Solar EIR comments

2 messages

Debra Hughson <debrahughson@hughes.net> Sun, Apr 14, 2019 at 12:57 PM
To: "words4fun@gmail.com" <words4fun@gmail.com>

Vickie,

45-1 Here are a few preliminary comments on the EIR. I'm happy to be a signatory to any letter/correspondence on this project but only as a private citizen since NPS does not have a dog in this fight. The length of the report is perhaps compensation for its inadequacy in many ways – and perhaps strategic as well as an impediment to adequate public review. In its entirety the project and EIR appear to be primarily a matter of social injustice, i.e. undesirable industry tends to be located in poor, often minority neighborhoods. Apparently CEQA does not require any consideration of that because I found it mentioned nowhere.

45-2 The only finding of Impact in the EIR that is Significant, Unavoidable, and for which no Mitigations exist is to groundwater, but for reasons with implications unrelated to the project. The threat is that displaced water rights will be moved to places where they can do even more harm, such as east of the Calico-Newberry fault or another Subarea, under the rules of the 1996 Stipulated Judgement. The mere idea of private water rights in search of land to be used on would be preposterous if it were not in the western U.S. But here there is nothing the County can do.

Revealed in this finding is the implication that the rules of Stipulated Judgement are inadequate to "balance" the Baja Subarea. If the water right holders are free to migrate their operations to the east side of the fault with only a notification to the Watermaster, and the only thing stopping them is their own economic common sense, then a declining water table is inevitable for the foreseeable future. But this finding is irrelevant with regards to the solar project, which is buying its water from existing rights holders. For its part the project is converting land from high water use intensity (alfalfa irrigation) to lower use intensity (solar farming), which is overall positive for groundwater sustainability.

45-3 Despite the length of the document and detail of supporting technical reports, the biological analysis (Appendix E-1) is incomplete. Presumably the authors, mentioned only as "HDR biologists, Sarah Barrera and McKenna Chamberlain" conducted a three-day site visit in the fall of 2017, performed a literature search, and recommended that biological surveys be completed. Had biological surveys actually been done they would likely have encountered the "Not Expected" tricolored blackbird foraging in the alfalfa fields. No "literature search" is required to learn about the species presence in Newberry Springs. A simple web search would have turned up videos posted on youtube. The authors correctly concluded that their site visit was not sufficient and that actual biological surveys should be done.

45-4 The area is geologically active for wind erosion and dust transport. One wonders why the County and Regional Air Quality Control Board do not use their authority to ensure that the project reduces dust transport rather than being resigned to Significant and Unavoidable Impacts. Adequate water application during construction and appropriate surface treatments afterwards (e.g. re-vegetation) could potentially improve air quality for the residents to the east. Failure to do so gives the impression that profitability for

45-4 *Cont'd*

the developers (and more taxes) are higher priorities for the County than health and quality of life of the residents.

45-5

Clearly there are numerous residents of Newberry Springs who will be significantly and adversely impacted by this project. Those who find themselves in or near a new industrial zone will lose value in their property, scenic views, and rural lifestyle. In order to regain these values they will have no other choice but to accept the loss and move away. This is privatization of benefits and socialization of impacts. Neither the County nor the developers seem to be responsible for the economic and quality of life costs to be borne by the inhabitants of Newberry Springs. The reality is that the community is not sufficiently wealthy or politically powerful for these impacts to rise to the level of Significance, which is obviously a function not only of the impacts themselves but of who is impacted.

Vickie Paulsen <words4fun@gmail.com> Sun, Apr 14, 2019 at 3:42 PM
To: Debra Hughson <debrahughson@hughes.net>

45-6

Excellent, Debra. I will note you as a private citizen when your remarks are used. Thanks a lot for delving into it. I had that same impression, that they were trying to bury us under the weight of the EIR, expecting us to be squashed and intimidated.
[Quoted text hidden]
–
Vickie Paulsen

45 DEBRA HUGHSON

45-1

Comment Summary:

This comment raises concerns about the adequacy of the EIR, the length of the EIR, and environmental justice.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to the California Environmental Quality Act (CEQA). CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

The comment does not provide a reason, other than length of the document, to warrant extension of the review period. Pursuant to CEQA Guidelines Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of the CEQA Guidelines.

45-2

Comment Summary:

This comment addresses the project's impacts to groundwater.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2 of the EIR. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Letter 3 (Watermaster letter).

45-3

Comment Summary:

This comment raises concerns about the adequacy and completeness of the biological site visit conducted in 2017 by HDR. The commenter then states that the authors of the HDR report state that the site visit was insufficient and additional surveys are required.

Response:

The commenter mischaracterizes the recommendations in the Biological Resources Technical Report (**Appendix E-1** of the EIR) and misinterprets the purpose of the report. The Biological Resources Technical Report (BTR) is the preliminary biological report that provides recommendations for additional surveys and studies to be conducted as part of the complete biological resource analysis. The fact that the BTR recommends additional surveys does not make it faulty or insufficient, rather the recommendations help narrow the analysis in future documents. To that point, Section 3.4, Biological Resources and Appendices, of the EIR, includes the additional surveys and studies that were recommended in the BTR at **Appendices E-2** through **E-5**.

45-4

Comment Summary:

This comment raises concerns about mitigation measures for air quality and dust impacts, and suggests that the project use water and vegetation to suppress dust transport during and after construction. The comment disagrees with the conclusion that impacts to air quality are significant and unavoidable.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. More specifically, mitigation measure **AIR-3** would manage and limit ground disturbance by using natural vegetation to stabilize disturbed or otherwise unstable surfaces when feasible. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. The EIR fully addressed CEQA requirements for air quality impacts. Please refer to Master Response 1.

45-5

Comment Summary:

This comment states that the project would impact property values, scenic views, and rural lifestyles.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to the California Environmental Quality Act (CEQA). CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

45-6

Comment Summary:

A personal note is included regarding the commenter's remarks.

Response:

This comment is conclusory and does not raise any environmental concerns nor address the adequacy of the EIR. No further response is required.

Nievez, Tom

From: Ali Jones <ajonesranch@gmail.com>
Sent: Tuesday, April 23, 2019 3:54 PM
To: Nievez, Tom
Subject: Newberry Springs Solar Project

Dear Sir,

46-1 I am in opposition of the large solar projects planned for Newberry Springs. The size and number of panels will negatively impact our community.

46-2 There is no benefit to Newberry Springs to justify the undue burden these projects will bring.

46-3 Adjacent areas like Daggett are welcoming these projects. The projects slated for Newberry Springs may be better received over there.

46-4 Please take action to protect Newberry Springs from this intrusion.

Best regards,
Andy Jones
42637 Duntroon Street
Newberry Springs, CA 92365
909-670-9328 cell

46 ANDY JONES

46-1

Comment Summary:

The comment expresses opposition to the project.

Response:

This comment voices opposition to the project, but does not address the adequacy of the EIR or raise any environmental concerns that can be specifically addressed in this response.

46-2

Comment Summary:

This comment states that the project would not benefit the local community.

Response:

This comment voices opposition to the project, but does not address the adequacy of the EIR or raise any environmental concerns that can be specifically addressed in this response.

46-3

Comment Summary:

This comment states neighboring communities are less opposed to similar projects.

Response:

This comment voices opposition to the project, but does not address the adequacy of the EIR or raise any environmental concerns that can be specifically addressed in this response.

46-4

Comment Summary:

This comment states opposition to the project.

Response:

This comment voices opposition to the project, but does not address the adequacy of the EIR or raise any environmental concerns that can be specifically addressed in this response.

Nievez, Tom

From: Darrellene Landrus <dj1949@live.com>
Sent: Thursday, March 21, 2019 11:29 AM
To: Nievez, Tom
Subject: ENVIRONMENTAL IMPACT REPORT FOR NEWBERRY SPRINGS CA

Mr. Nievez

47-1 I take great exception to the use of the word "insignificant" when you talk about the air quality, and our water quality.

47-2 We just had some big company use HALF of our aquifer for their PROJECT WITHOUT SO MUCH AS A BY YOUR LEAVE FROM THIS COMPANY NOR ANY OFFER OF COMPENSATION FOR USING OUR WATER!!! meaning the residents of our little community now have HALF the water. We are already conserving as much as we can…you want us to stop bathing and drinking on top of it? Make our pets and livestock die due to lack of water? Yes, I am being a bit melodramatic, but maybe that is what you guys need. The fact is many us have let our lakes dry because of the water issue and do everything possible to conserve what water we have and you say contaminating or losing MORE water levels is "INSIGNIFICANT"? And just because the Drought has been declared over, does NOT mean it won't be back by summer when the sun will bake us, NOR is there any guarantee there will sufficient rain to keep drought at bay…

47-3 And maybe you should all look up C.O. P.D…smoking and 2nd hand smoke are NOT the only causes. https://www.webmd.com/lung/copd/what-causes-copd#1 Air pollution and irritants also cause this disease with no cure and is a death sentence…but you say that is INSIGNIFICANT. The winds kick up everything that causes C.O.P.D. and brings in visiting guests from other areas. You will be responsible for the long, slow, suffering death of many residents. But hey, it's just human life…insignificant in the grand scheme of things.

47-4 And what about the glare of the panels on the airplanes? Haven't 2 such solar farms been taken down because of that? AND you want this thing surrounding a PRIVATE AIRPORT???

47-5 No, using what is left our water with the possibility of contaminating it and the health issues are NOT insignificant.

47 DARRELLENE LANDRUS

47-1

Comment Summary:

The comment voices opposition to the project based on air and water quality impacts.

Response:

Comment noted for the record. This comment voices opposition to the project, but does not address the adequacy of the EIR or raise any environmental concerns that can be specifically addressed in this response.

47-2

Comment Summary:

The comment voices opposition to the project based on water quality and availability impacts.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2 of the EIR. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Letter 3 (Watermaster letter).

47-3

Comment Summary:

The comment voices opposition to the project based on air quality impacts. The commenter states that air pollution and irritants can cause COPD.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. The EIR fully addressed CEQA requirements for air quality impacts. Please refer to Master Response 1 for a complete response regarding this topic. Additionally, please refer to Master Response 3 for more information on the HRA performed for the project.

47-4

Comment Summary:

The comment voices opposition to the project based on potential glare from the solar panels.

Response:

Impacts associated with glint and glare are properly evaluated in the EIR. Please refer to Master Response 6 for more information on the glint and glare analysis conducted in the EIR.

47-5

Comment Summary:

The comment voices opposition to the project based on water impacts.

Response:

This comment voices opposition to the project, but does not address the adequacy of the EIR or raise any environmental concerns that can be specifically addressed in this response.

Nievez, Tom

From: Melissa Moore <moorefun1990@gmail.com>
Sent: Sunday, April 28, 2019 9:46 PM
To: Nievez, Tom
Cc: Melissa Moore
Subject: Daggett Solar Project

Hello. My name is Leonard Moore and I have been a resident of Newberry Springs for the past 26 years, but prior to this I spent many years of my youth enjoying the open land and all it has to offer. In 1993 I decided to buy some land and have a home built for my family. Me and my wife raised two sons who attended schools in our community and they also enjoyed the advantages of living in a rural setting. My wife and I also work In the surrounding community of Yermo. Where we both have the advantage of short commutes with no traffic. Also in 2008 I purchased the lot next to me to increase my space and not feel closed in like city living. When hearing of the Daggett Solar project one of our main concerns is the issue of Section 3.3 Air Quality, particularly the part about the dust blow. Our house is located off of Minneola Rd. on Dogwood St. Already because living in a rural setting we experience some dust and sand blow without the disruption of the soil our concern is putting in this Daggett Solar Project is going to cause dust and sand blow in a much greater magnitude. With this it will cause sand build up around not only my home but others who live in the affected area. With this also comes health risks from breathing an excessive amount of dust not only outside but in our homes. With this We hope you take our concerns serious, we like many others chose to build our lives in this community for several reasons I stated above and if your gonna let this project go forward I would rather be bought out of my home than to be buried in sand and fighting health issues due to the dust. Thanks for your consideration and time.

48-1

48-2

48-3

Thank you,
Leonard Moore
41094 Dogwood St.
Newberry Springs, Ca 92365

48 LEONARD MOORE

48-1

Comment Summary:

This comment discusses the author's history of living in the project vicinity.

Response:

The comment does not raise any environmental concerns nor address the adequacy of the EIR which can be specifically addressed in this response.

48-2

Comment Summary:

This comment raises concerns about the potential impacts from dust blowing and the adequacy of Section 3.3 of the EIR.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts. Please refer to Master Response 1 for additional information regarding air quality impacts and Master Response 8 for additional information regarding windblown dust.

48-3

Comment Summary:

This comment voices opposition to the project based on dust and air quality issues.

Response:

Please refer to Response 48-2 above.

To Tom Nievez,

RE; Daggett Solar Power Facility SCH# 2018041007
Minneola Solar Project (S20180004) AKA Newberry Spring Project

I'm a new homeowner in Newberry Springs. I just became aware of this Solar Project. I had no idea that it was going to be just around the corner from my home.

49-1 I dealt with sand storms during the fall. I have been told that if these solar plants were to be built it would be worse than just the ones I have experienced.

In addition to myself moving in last fall. We acquired 3 more families that just moved in the past 3 months. One family arrived with a newborn and a 6 year old girl. We may be in a rural area but we planted our roots here to enjoy the desert and what it has to offer us.

49-2 My understanding is that when and if they approve this project it will damage the natural habitats of several animals and plants. I enjoy listening to all species of birds that visit and pass my home. I had an encounter with a toad last fall. It surprised me so much I took a picture of him and sent it to my family.

49-3 I saw pictures that were posted by the solar companies on the Minneola project and they are not a pretty site. I myself am a photographer. I value the desert natural beauty. Solar plants will be nothing but an eyesore and they are highly efficient to killing birds thinking it is a lake or water source. Also, they told me they are going to

49-4 be 20 feet tall. If I wanted to look at buildings I would go back to living in a regular city with tall buildings and such.

I think the Policy 4.10 should be looked at again.

49-5 RE Policy 4.10: Prohibit utility-oriented RE project development on sites that would create adverse impacts on the quality of life or economic development opportunities in existing unincorporated communities.

RE 4.10.1: Prohibit development of utility-oriented RE projects in the Rural Living land use districts throughout the County.

RE 4.10.2: Prohibit development of utility-oriented RE projects within the boundaries of existing community plans, which at the time of adoption of this Element are the Bloomington, Muscoy, Bear Valley, Crest Forest, Hilltop, Lake Arrowhead, Lytle Creek, Oak Glen, Homestead Valley, Joshua Tree, Lucerne Valley, Morongo Valley, Oak Hills and Phelan/Pinon Hills Community Plans.

49-5

Cont'd

RE 4.10.3: Establish exclusion areas in the Development Code regulations for renewable energy development, beginning with the prohibitions in Policies 4.10.1 and 4.10.2 and provide for additional exclusion areas, such as new community plan areas, to be designated by amendment to the Development Code.

According to the California Noise Control Act of 1973, find that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economical damage. The act also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas. It is the policy of the state to provide an environmental for all Californians that is a free from noise that jeopardizes their health and welfare.

49-6

I'm concerned about our newest family with the newborn.

I also read about Valley Fever. It's an illness caused by a fungus found in the soil and dirt of some areas of the California. The fungi's spores can be stirred into the air by anything that disrupts the soil such as farming, construction, and wind. The fungi can then be breathed into the lungs and cause valley fever also known as acute coccidioidomycosis.

49-7

We are a tourist town with our Route 66 highway. I've seen a lot of visitors get off of Hidden Springs Road to National Trials Highway and get out of their cars, off their motorcycles or whatever they may be driving and take pictures of themselves with our logo on the highway. I've met people who have driven the original Route 66 from beginning to end. They say they love traveling through our small part of the desert to visit our historical places. We depend on them for our livelihood. If you start putting solar plants we all will be affected by them.

49-8

I believe I'm one of many homeowners on my street that are against this project being built near us. It will effect all us greatly, not only the dust, noise, congestion of traffic but our lovely desert will never be the same.

49-9

Thank you for your time.

Virginia Padilla

49 VIRGINIA PADILLA

49-1

Comment Summary:

This comment provides an introductory discussion of the author's history in the area. The comment raises concerns about the air quality impacts of the project.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. The EIR fully addressed CEQA requirements for air quality impacts. Please refer to Master Response 1 for a complete response regarding air quality mitigation and Master Response 8 for additional information regarding windblown dust. No further response is required.

49-2

Comment Summary:

This comment raises concerns about impacts to biological resources.

Response:

The commenter does not present information that materially affects the methods or findings of the EIR regarding biological resources that can be specifically addressed in this response.

49-3

Comment Summary:

This comment raises concerns about the visual and biological impacts of the project. The comment states that the project would harm birds that think it is a source of water.

Response:

Please refer to Responses 2A-11 and 2A-12 regarding avian impacts due to the "lake effect." The commenter does not present information that materially affects the methods or findings of the EIR regarding visual resources. Please refer to Master Response 7 regarding the methodology for the visual impact analysis.

49-4

Comment Summary:

This comment states that the solar panels for the Minneola project would be 20 feet tall and are unsightly.

Response:

The Minneola project is a separate project from the one evaluated in this EIR. Visual impacts are described and evaluated in the EIR. Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis.

49-5

Comment Summary:

This comment pertains to RECE Policy 4.10, which discusses land use compatibilities for renewable energy projects.

Response:

Section 3 of Resolution No. 2019-17 of the Amendment of the Renewable Energy and Conservation Element of the General Plan, adopted by the Board of Supervisors on February 28, 2019, stipulates that "any application for development of a renewable energy generation project that has been accepted as complete in compliance with California Government Code Section 65943 before the effective date of this Resolution shall be processed in compliance with the policies and regulations in effect at the time the application was accepted as complete." The application for the Daggett Solar Power Facility was deemed complete on March 22, 2018 and thus the pre-amendment policies and regulations apply to the project.

Regardless, the project is consistent with many of the policies contained in the RECE, including that it is located primarily on disturbed land, adjacent to existing utility infrastructure, near existing industrial development including an airport and existing utility-scale solar, and is not within an adopted Community Plan area. Tables 3.10-2 and 3.10-3 in the EIR summarize the project's consistency with these policies.

As further stated in Section 3.10, the County passed an ordinance amending Chapter 84.29, Renewable Energy Generation Facilities, and Chapter 810.01, Definitions, of the San Bernardino County Development Code, relating to the regulation of commercial solar energy generation facilities. The proposed project would be subject to these and additional findings requirements as a part of the 2013 ordinance during the review and Conditional Use Permit (CUP) application process.

49-6

Comment Summary:

This comment pertains to noise impacts caused by the project.

Response:

The commenter does not provide specific evidence to support the claim that the project's noise mitigation measures would be insufficient which can be addressed specifically in this response. Please refer to Section 3.11, Noise of the EIR for more information regarding noise impacts and mitigation measures.

49-7

Comment Summary:

This comment pertains to Valley Fever and the potential for public health impacts of soil disturbance.

Response:

The implementation of mitigation measure **AIR-1** and **AIR-2** would provide significant control of fugitive dust emissions and limit the potential of exposure to Valley Fever (see the discussion associated with Impact 3.3-3 of the DEIR [page 3.3-23]). Therefore, potential exposure to Valley Fever is reduced through implementation of dust control mitigation measures and standard MDAQMD rules. Please refer to Master Response 2 regarding Valley Fever.

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. The EIR fully addressed CEQA requirements for air quality impacts. Please refer to Master Response 1 for a complete response regarding this topic.

49-8

Comment Summary:

This comment pertains to issues regarding the economics and tourism.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

49-9

Comment Summary:

This comment voices opposition to the project based on air quality, noise, and traffic impacts.

Response:

The comment does not raise any new specific environmental concerns that were not addressed in the previous comments of this letter. Please see Responses 49-1 through 49-8.

Nievez, Tom

From: Mieke Paulsen <m.longstrider@gmail.com>
Sent: Tuesday, April 23, 2019 3:48 PM
To: Nievez, Tom
Subject: Solar panels in Newberry Springs

Dear Mr. Nelvez,

50-1 I am writing to support Vickie Paulsen and the community of Newberry Springs, who do not wish a disruptive solar power plant near their community. As I understand it, local preferences must take precedence in a situation such as this, where the power is not only unnecessary to the state's energy consumption, but dangerous to the local eco-system and disruptive to the quality of life. There are other places to build, if necessary.

Thank you for your time,
Mieke Paulsen

50 MIEKE PAULSEN

50-1

Comment Summary:

This project voices opposition to the project based on ecological impacts and questions the necessity of the project.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns that can be specifically addressed in this response.

Vickie Paulsen
43843 Valley Center, Newberry Springs, CA 92365
760-447-2118 • words4fun@gmail.com

April 23, 2019

To: Mr. Tom Nievez, Contract Planner
Land Use Services

Subject: Comment on Environmental Impact Review for Daggett Industrial Solar Project

51-1

The following seven pages are my comments on:

Air Quality, EIR 3.3, with additional references to.
Biological Resources, EIR section 3.4,
Geology and Soils, EIR section 3.6
Other CEQA Considerations, EIR section 5,
and of course -
Development Code 84.29.

Thank you for this opportunity to discuss a few of the many deficiencies in this EIR for a project that would irreparably impact and harm my community.

Vickie Paulsen

Daggett EIR Comment, by Vickie Paulsen, resident of Newberry Springs
Page 2 of 7, Air Quality, EIR 3.3; Other CEQA Considerations (EIR 5.0), and 84,29.035

"Based on the analysis within this EIR, significant and unavoidable impacts would be limited to impacts on air quality during the project construction phase." (EIR p. 5-4]

The EIR calls these problems "significant and unavoidable", and suggests that they are only such during construction.

51-2

The MDAQMD has distributed several PurpleAir monitors in Newberry Springs and some residents have spent their own funds on such monitors. Though the PurpleAir monitor is not officially recognized, it is good enough to show the impact of blowing sand and particles here since the only "official" monitors are in Barstow, 20 miles to the west, and Victorville, a few mountain ranges away.

For such a gigantic project to be considered without a baseline of several years of official air monitoring, is ludicrous. Even the existing PurpleAir monitors have not been in place long enough for such a study. Construction will only exacerbate what is already a major problem in some areas, especially for residents with respiratory illnesses. [I cite and concur with Robert Berkman's (CEQA-NOW) comments on April 5, 2019, and many other comments made in and for this EIR and the Scoping meeting in 2018.]

51-3

Mitigation measures suggested and promoted by the EIR are sand fences (Fig 1), chain link fences (Fig 2), and K-rails. The illustrations below should put the lid on such suggestions. K-rails are not pictured, but we all know they are about knee high with a nice up slope that carries sand and the accompanying microscopic particles hundreds of feet into the air.



Fig 1. Hereford & Black Butte sand fence with mounds of sand on both sides.



Fig 2. Mt. View solar project shows that chain link is useless against blow sand





Figs. 3 & 4. Sand blow vs clear day at my house looking south to the iconic view of Newberry Mountains. No K-rail, sand fence, or chainlink fence could stop this.

Page 3 of 6, Daggett EIR Comments, by Vickie Paulsen, resident of Newberry Springs
Air Quality, EIR 3.3, Biological Resources, EIR 3.4, Geology and Soils, EIR 3.6

Here are some quotes taken from the EIR and Appendices dealing with Air Quality and Sand Transport:

51-4 **"Chain-link fencing is likely to be used, potentially topped with 1 foot of barbed wire. In consultation with the County, slats or mesh may be added to the chain-link fence, as appropriate and in areas where needed, to manage windblown sand."** [Section 2.0 Project Description p. 12].

This statement is repeated at p. 13 and in Appendix D-2 as well as elsewhere. See Fig. 2 for reality.

"a stabilizing layer of gravel may be required to eliminate visible dust/sand from sand/fines deposit, if water application does not achieve stabilization. Other controls could include application of hydromulch (with seed for re-establishment of vegetation), application of soil binders, or even the use of soil cement for particularly unstable areas." [0.0.4 ES-1 Table, p 8.]

51-5 These can be effective, but as history shows, and residents know, Newberry Springs is at the extreme end of the spectrum when it comes to possible irreparable damage from blowing sand (see pictures on page 1 and below).

Section 3.4 Biological Resources speaks of state special species like the burrowing owl, the fringe toed lizard, and the bats, and how the solar facility should not irreparably mess up their habitats, but should make it possible for them to survive with the panels. These critters will have a difficult time trying to dig through four or more inches of gravel to find food or shelter. Section 3.4 might make Section 3.3 obsolete.

"Wind Fencing. Strategically placed wind barrier fencing shall be installed as part of the construction and operation phases (shown in Exhibit 3.3-1, Wind Fence Locations) and be maintained to minimize dust blowing in the direction of the adjacent residences or the Barstow-Daggett Airport. Wind barrier fencing should be inspected by the contractor no less than once quarterly and repaired or replaced as needed to maintain full functionality. Any accumulated sediment would be removed and either re-

51-6 **distributed onsite or transferred off-site for use or disposal elsewhere. "** 0.0.4 Table ES-1, p 11. also see Appendix D-2, AEOLIAN IMPACTS, Administrative Draft, Technical Memorandum, p. 7, and many other places in the DEIR].

I have provided a couple of photographs on pages 2 and 4, of what could be many many more with the same message: The wind is like the tide; you can try to change it, to stop it, but if you tear up what holds it back it will come and bury you.

51-7 The County already spends a lot of time and money fighting with the never-ending sand blowing onto Harvard, trying to transfer it or re-distribute it. The developers of Daggett Solar should consult with them to find out how inexorable the sand tide is, and they (NRG) should have to pay the expenses incurred not only by moving the sand around trying to get rid of it, but by residents dealing with increased health issues and property value loss.

Page 4 of 7, by Vickie Paulsen (resident of Newberry Springs)
Air Quality, EIR 3.3, Geology and Soils, EIR 3.6, Biological Resources, EIR 3.4
84.29.035



(left) Desert "pavement", small and medium rocks plus small grasses and other vegetation - what holds the sand in place even in heavy winds.

When broken up by vehicles, construction, or feet, the underlying sand composed of small, even microscopic particles, is let loose to blow east to Newberry Springs.

Also visible are small animal tracks proving that this is inhabited.

51-8



Fig. 5 (above). This is what happens when sand fences, chain link fences, road grading, and water fail to contain blowing sand. As the Mojave River dried up due to the drought and upstream users, nothing was able to control the tons of sand let loose. The residents were forced to sue the County and relocate (1980s-1990s).

Those close to present sand "rivers" fear this future for themselves should the solar panel project be approved.

Somehow, lizards (some are Fringe Toed Lizards, state special status species), live here and make pretty tracks in the sand. Also, athol trees continue to survive even after entrapping up to 15 ft high sand dunes.

EIR Comments, page 5 of 7, Vickie Paulsen. (resident of Newberry Springs
84.29.035
Air Quality [EIR 3.3]

"The following is a general estimate of the project's required grading by phase: Phase 1: 1,753,000 cubic yards; Phase 2: 1,888,000 cubic yards; Phase 3: 1,726,000 cubic yards; and gen-tie: 533,000 cubic yards. After grading, temporary fences would be placed around the project site, which would allow materials and equipment to be securely stored on the site." [Section 2.0 Project Description, p. 13]

51-9 Please take another look at the picture of desert pavement on page 4. Add the amounts up for the three phases plus gen-ties and you get **5,900,000 cubic yards of dirt** being shaved, stuffed, mowed, and tossed. When even a small amount of our desert soil is shaken up by whatever means (grandchildren, OHVs, trucks, wind), the sand and microscopic particles lying under the heavier ones are let loose like Pandora's box. They can flood past K-rails, sand fences, and other mitigation attempts to permanently damage Newberry Springs. This is an environment like no others your researchers have encountered. Their puny mitigation efforts will have no lasting effect.

51-10 The County Development Code 84.29.035 (22) **"For sites where the boundary of a new commercial solar energy generation facility will be located within one-quarter mile of a primary residential structure, an adequate wind barrier will be provided to reduce potentially blowing dust in the direction of the residence during construction and ongoing operation of the commercial solar energy generation facility."**

This is inadequate as the wind transports sand far more than 1/4 mile in Newberry Springs. The good thing is that there is no wind barrier that can "reduce potentially blowing dust", so to approve the Project would be in violation of the County Code which is, actually, Law.

51-11 People who live here understand the problem much better than city dwellers who visit for a few hours (or maybe days) and make judgments based on what they see and read in a few charts and tables. Our east are cleared and bare, then we will be proven right, even as we watch the high sand drift across Minneola into our community and the creatures who live and forage there flee for better, friendly places.

EIR Comments, page 6 of 7, Vickie Paulsen. (resident of Newberry Springs)
84.29.035
Air Quality [EIR 3.3]

[Other CEQA Considerations, Guidelines pg 5-4. **"Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The environmental effects of the proposed project on various aspects of the environment are discussed in detail in Chapter 3. Based on the analysis within this EIR, significant and unavoidable impacts would be limited to impacts on air quality during the project construction phase.**

51-12

"The project is located in a nonattainment area for multiple pollutants and construction would exceed air quality thresholds for PM_{10} and $PM_{2.5}$. In addition, the project is not consistent with the Western Mojave Desert Air Quality Management Plan and construction of the project would delay attainment of Mojave Desert Air Quality Management District (MDAQMD) air quality goals. The project will result in a temporary cumulatively considerable increase in nonattainment pollutants, adversely impacting air quality."

This is morally and perhaps legally wrong. Unattainability should not be the criterion for ignoring a dangerous situation, and then approving the construction of the project that creates the unattainability.

These "temporary," "nonattainable" pollutants happen to be some of the worst that exist. Recently (see the PurpleAir readout, Fig. 6) the readings INSIDE the house by a personal air quality device showed PM 2.5 readings close to 400. That is as bad as it gets anywhere in the world! People die from breathing that kind of air!

51-13

Moreover, the interior reading was taken after, not during the event. PM 2.5 stays around, it doesn't dissiplate, it is so tiny and light that nothing affects it - but it has deep affects inside one's lungs.

51-14

It would be prudent for the developers (NRG) and the County to drop the Daggett Industrial Project or face years-long litigation for the many errors and misrepresentations in this Report.

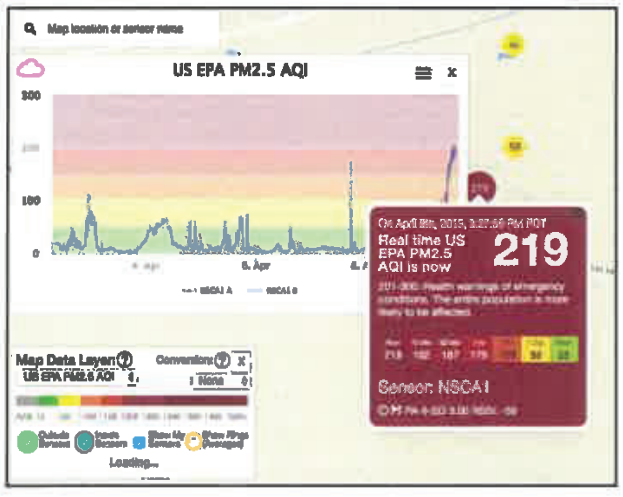


Fig. 6. PurpleAir reading during a recent blow across from the Soitec Solar site on Mountain View. Other monitors in Newberry in non-sand blow areas did not register nearly as high.

EIR Comments, page 7 of 7, Vickie Paulsen. (resident of Newberry Springs)
84.29.035
Air Quality [EIR 3.3]
Geology and Soils [EIR 3.6]

Impact 3.6-2 The project would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant.

Soil erosion may result during construction of the proposed project, as grading and construction can loosen surface soils and make soils susceptible to the effects of wind and water movement across the surface. [EIR p. 3.6-10]

How can this be, when the 5,900,000 cubic yards are going to be moving around for more than three years during construction, and for 30 years after that during the lifetime of the Project, because of wind and the nature of wind's impact on the ground under solar panels, and forever after that as restoration of desert pavement and plants proves impossible? Come and visit the 20-acre project on Mt. View (never mind - here is a picture, Fig. 7).

"**Grading and construction can loosen surface soils**" - That is what grading **does.** It is not a "can" but a "will". The Report's prevarications will not make blowing soil nor the dangerous particles it contains, stay in place.

51-15



Fig. 7 - Mt. View solar project on just 20 acres. Homes across the street are inundated with sand, dust, and PM 2.5 & PM 10.

"Erosion control BMPs include but are not limited to the application of straw mulch, hydroseeding, the use of geotextiles, plastic covers, silt fences, and erosion control blankets, as well as construction site entrance/outlet tire washing." [ibid]

51-16

This section deals with "during construction," naively assuming that all is well afterwards. Daggett Solar would be constructed in a flood zone of sand, and the flooding would be in Newberry Springs, not Daggett (naming it "Daggett" was another prevarication from the authors).

Look at Fig. 7. After approval, will it matter if mitigation schemes don't work? Who is going to hold NRG and LUS accountable? How much will failed mitigation ultimately cost the County in lost taxes and litigation?

51 VICKIE PAULSEN

51-1

Comment Summary:

This comment provides an introductory discussion of the topics contained in the letter.

Response:

The comment does not address the adequacy of the EIR or raise any specific environmental concerns that can be specifically addressed in this response.

51-2

Comment Summary:

This comment states that air quality impacts would occur during operations in addition to construction. The commenter states that the Barstow and Victorville air quality monitoring stations do not provide an accurate baseline due to the distance from the project site. The commenter states PurpleAir monitors, although unofficial, would provide a more accurate baseline for air quality impacts. The commenter states that the project would exacerbate respiratory problems for local residents.

Response:

An adequate baseline for air quality impacts is provided in Section 3.3, Air Quality, of the EIR. Ambient air quality is a regional (rather than localized) environmental resource, and historical trends in the region are documented by measurements made by the MDAQMD, the air pollution regulatory agency in the air basin. Please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis. Refer to Master Responses 1, 2, and 3 for more information on potential health impacts related to air quality.

51-3

Comment Summary:

This comment states that sand fences, chain link fences, and K-rails do not adequately mitigate the impact of blowing sands and soils. The commenter then provides four pictures to support the commenter's claim.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust.

51-4

Comment Summary:

This comment cites text from the EIR regarding air quality and sand transport.

Response:

Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust.

51-5

Comment Summary:

This comment states that mitigation measure **AIR-1** may be in direct conflict with findings in Section 3.4, Biological Impacts because special-status species, such as the Mojave fringe-toed lizard, may not be able to dig through the gravel that may be laid for dust control.

Response:

Please refer to Section 3.4, Biological Resources of the EIR. Mojave fringe-toed lizards are not expected to occur on-site. Local bats do not burrow underground. Refer to Responses 2A-17 through 2A-18 regarding burrowing owl mitigation measures. Implementation of mitigation measure **BIO-2** would ensure potential impacts to burrowing owl are reduced to a less than significant level.

51-6

Comment Summary:

This comment cites text from mitigation measure **AIR-3** regarding wind fencing and states that wind fencing would be ineffective. The commenter then references the pictures from comment 51-3.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 for additional information regarding windblown dust.

51-7

Comment Summary:

This comment states that the County already pays a lot of money trying to transfer sand from Harvard and that the project applicant should consult with them regarding sand issues. The commenter states that the project applicant should pay for moving the sand. The commenter also states that the project applicant should pay for residents' health problems and loss of property value related to project implementation.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 for additional information regarding windblown dust.

51-8

Comment Summary:

This comment provides two photos of desert conditions. The first photo illustrates "desert pavement." The second photo provides an anecdotal example of sand dunes caused by blowing sand.

Response:

The comment does not raise any specific environmental concerns nor address the adequacy of the EIR. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 for additional information regarding windblown dust.

51-9

Comment Summary:

This comment states that mitigation measures **AIR-1** through **AIR-3** cannot adequately mitigate the disturbance of 5,900,000 cubic yards of grading.

Response:

The project construction methods have been revised and updated to minimize grading. The following is a general estimate of the project's required grading by phase, including limited micrograding of array areas and construction of stormwater improvements and elevated pads, but not including discing and rolling of array areas: Phase 1: 200,000 cubic yards; Phase 2: 200,000 cubic yards; Phase 3: 150,000 cubic yards; and gen-tie: 10,000 cubic yards. Therefore, the total amount of dirt that would be moved for the project would be closer to 560,000, or less than 10% of the originally calculated amount. Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Also see Master Response 8 and Response 13-10 for more discussion on disturbance during grading.

During construction, vegetation will not be removed from the proposed project site until the onset of a given construction activity. Within the solar field, vegetation will typically be mowed/plated, mulched or composted, and retained on-site to assist in erosion control and limit waste disposal. In some areas to be graded, native vegetation may be harvested for replanting to augment soil stabilization. Plant root systems will be left in place to provide soil stability except where grading and trenching are required for construction of drainage controls, underground electric lines, inverter and transformer pads, substation and O&M building pads, road and access ways, and other facilities.

51-10

Comment Summary:

This comment states that wind barriers cannot adequately reduce blowing dust within .25 miles of a residence. Therefore, the commenter states that the project cannot be approved.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown dust.

51-11

Comment Summary:

This comment states that the local residents know more about the area than city dwellers.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

51-12

Comment Summary:

The comment states that it is "morally and perhaps legally wrong" to use unattainability as a criterion for ignoring a dangerous situation.

Response:

Nonattainment means that the air district is over the set threshold for a particular pollutant. The threshold is set on a cumulative level where one project alone would not put the district over the cap. Please refer to Master Response 1 for more information on air quality impacts and mitigation measures.

51-13

Comment Summary:

This comment states that $PM_{2.5}$ does not dissipate and has deep affects [sic] inside one's lungs.

Response:

The comment does not raise any specific environmental concerns nor address the adequacy of the EIR. Please refer to Master Response 3 regarding the health risk assessment for the project.

51-14

Comment Summary:

The comment states that the project applicant should cancel the project in order to avoid litigation.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

51-15

Comment Summary:

This comment disagrees with the finding of Impact 3.6-2 that states that the project would not result in substantial soil erosion or the loss of topsoil.

Response:

As stated in the discussion associated with Impact 3.9-3 of the EIR, the project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are incorrect which can be specifically addressed in this response. Please refer to Master Response 1 for more information on air quality impacts and analyses and Master Response 8 regarding windblown dust.

51-16

Comment Summary:

This comment states that mitigation measures only address impacts during construction and not during operations. The commenter then asks what happens if the mitigation measures don’t work and who holds the project applicant accountable.

Response:

Refer to Master Response 1 for more information on air quality impacts, analyses and mitigation measures. The EIR requires that these measures be implemented by the project applicant and that the County monitor their effectiveness.

Nievez, Tom

From: Vickie Paulsen <words4fun@gmail.com>
Sent: Saturday, April 27, 2019 7:54 PM
To: Nievez, Tom
Subject: Re: Comments on Daggett EIR

I am trying again to send this. Your mailbox was full.

52-1 On Sat, Apr 27, 2019 at 7:45 PM Vickie Paulsen <words4fun@gmail.com> wrote:
Attached are three letters on various of the sections.

52-2 And I'd like to go on record as commenting on transportation. The I-40 around here is full of bumps and bruises from all the truckloads of dirt and water used to re-do the median. The same is likely to happen to our local roads with all the ins and outs (up to 500 per day). Someone has to pay. Cal Trans pays for the I-40 (actually we all do), so it's only right that NRG should pay a whole lot for the roads they damage. Take a huge deposit!

Thanks.

Final Comment Air Quality etc.pdf

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52-3 Vickie Paulsen

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Vickie Paulsen

Vickie Paulsen
43843 Valley Center, Newberry Springs, CA 92365
760-447-2118 • words4fun@gmail.com

April 23, 2019

Mr. Tom Nievez, Contract Planner
tom.nievez@lus.sbcounty.gov

Subject: Comment on the Daggett Solar Project Environmental Impact Review

52-4 In this letter, I am commenting mostly on section 3.1, Aesthetics and Visual Resources, along with Appendix B-1, B-2, and Development Code 84.29.035.

Thank you for the opportunity to be heard -

Vickie Paulsen

Page 1 of 8

Daggett EIR Comment, by Vickie Paulsen (resident of Newberry Springs) -
Aesthetics and Visual Resources. Page 2 of 8.

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

52-5 **"HDR, Inc. was retained by NRG Renew, LLC to perform a Visual Impact Assessment (VIA) for the Project. This VIA was prepared to identify and evaluate the potential visual and aesthetic impacts associated with construction and operation of this Project."**
[EIR, Pg 1]The Corporations (HDR and NRC) have a lot of hubris, thinking they have the background, experience, and sensitivity to adequately assess the visual and aesthetic impacts of living in Newberry Springs. The published results are at complete odds with what residents and tourists know about our community.

52-6 **"sparsely spaced rural residential dwellings . . . and some undeveloped desert land."** [EIR, p. 11] Words count; their meanings are exact. Our dwellings are sparcely spaced and rural because they are placed on large parcels in a rural area. This is not something that needs fixing. "Undeveloped" implies that land is useless because no-one has exploited it yet. People who live on city lots or in high rises might look on our 10- to 80-acres parcels as areas that only need development to become meaningful.

52-7 Throughout the EIR but especially in section 3.1, Aesthetics and Visual Resources of Newberry Springs, and Appendices B-1 and B-2, HDR and Michael Bennett claim that the Project will not have a significant impact on Newberry Springs. My pictures will show the opposite. The Project flaunts the high standards written into law by the County in 2014 and further attested to by recent the adoption RECE 4.10.

52-8 The first picture (Fig. 1) was taken at the corner of Minneola and Valley Center [KOP 5B], one of the busiest intersections in Newberry Springs and a location I pass several times almost every day. The EIR simulation (Fig. 2] is completely wrong, showing the panels as half the size they will actually be and not impacting the view too much. You might not even be able to see them, they are so small.

My simulation [Fig. 3] shows the actual impact of the Project at that corner. The panels are placed at exactly the spot where they begin according to the engineering diagram. And they are the correct size, 20' high. A close look shows a man standing with a ten ft pole at that spot.

52-9 The Law of the County, the Development Code, states in section 84.29.035(a), **"the Planning Commission shall . .. determine that the location of the proposed commercial solar energy facility . . . will not lead to loss of the scenic desert qualities that are key to maintaining a vibrant desert tourist economy by making each of the findings of fact in subdivision (c)."**



Fig. 1- Minneola and Valley Center. Note the view, called "insignificant" in the EIR.

Page 3 of 8 - Daggett EIR Comment, by Vickie Paulsen (resident of Newberry Springs)-
Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

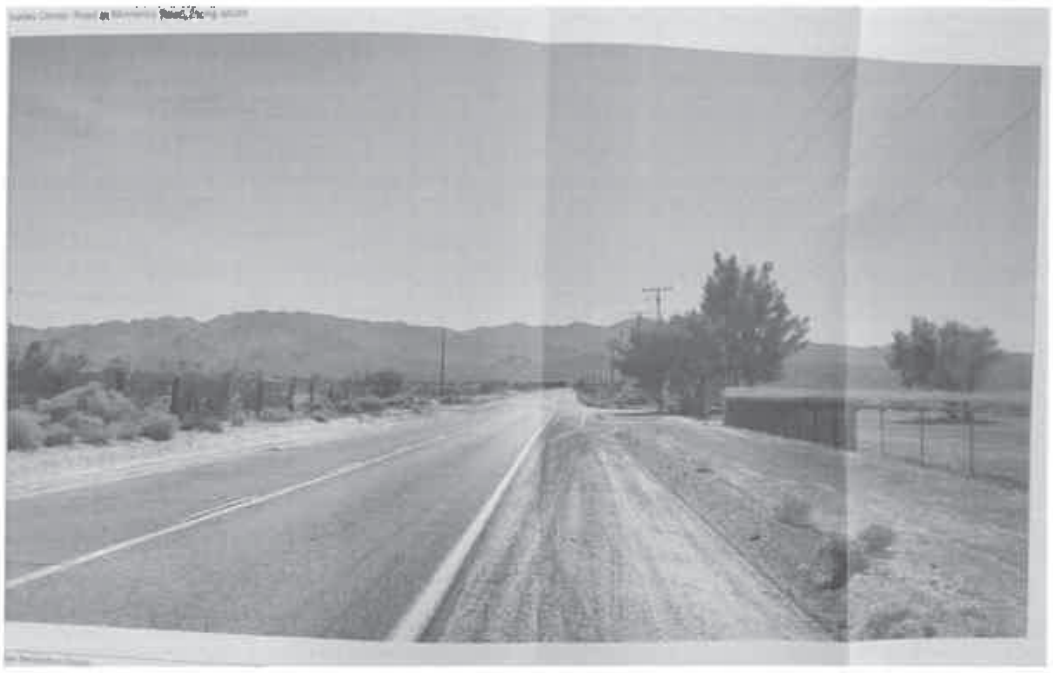


Fig. 2

52-10

Above, Fig. 2. KOP 5b from EIR. Minneola & Valley Center with simulated solar panels. The panels are barely visible because the creators used a height of 10 ft instead of the actual height of 20 ft. Below, Fig. 2, is my simulation of the same spot. By the nearest panel, at the exact spot where the plans say the panels begin, a man stands with a 10 ft pole for scale. This simulation is the actual way it would look if approved. It is ugly!



Fig. 3

Page 4 of 8 - Daggett EIR Comment, by Vickie Paulsen (resident of Newberry Springs) - Aesthetics and Visual Resources.

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

52-11 EIR Section (c) [Development Code 84.29.035] lists the 31 findings of fact the Planning Commission must consider before approving a Project. Because I am concentrating on visual and aesthetic effects, I will highlight only sections (1) and (2), though I believe 2/3 of the 31 are red lights to this solar development.

(1) The proposed commercial solar development facility is either:

(A) sufficiently separated from existing communities and existing/developing rural residential areas so as to avoid adverse effects, or

(B) of a sufficiently small size, provided with adequate setbacks, designed to be lower profile than otherwise permitted, and sufficiently screened from public view so as to not adversely affect the desirability and future development of communities, neighborhoods, and rural residential use.

52-12 **(2) Proposed fencing, walls, landscaping, and other perimeter features of the proposed commercial solar energy generation facility will minimize the visual impact of the project so as to blend with and be subordinate to the environment and character of the area where the facility is to be located.**

In judging (1)(A), the Commissioners will need to understand that the environment of Newberry Springs is far different from anywhere else. This entire project affects all of us even if only a few square miles are inside our CSD boundaries.

"Approximately 100 rural residences are within 0.5 mile radius of the project site." [EIR p. 3.1-4] Current residents and families moving in to this disadvantaged community expect to develop their land into something that lasts for generations. Residents on Chloride, Dogwood and Valley Center are terrified that

52-13 their property values will hit bottom, leaving them with nothing. Though closest to the project, their's aren't the only properties that will be affected. Newberry Springs in its entirety will be lost as the windblown sand accumulates and the viewscape is gone. This means the County will lose property taxes and our CSD will lose the ability to provide services. *NRG should be held responsible for repaying any loss to all residents.*

Below are a few of the residences on Chloride and Valley Center that are across the street or within a few hundred yards of the project.

52-14







Cont'd

Page 5 of 8 - Daggett EIR Comment, by Vickie Paulsen (resident of Newberry Springs) - Aesthetics and Visual Resources.

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

52-14 (1)(B), when applied to this proposed commercial solar energy generation facility, is laughable. The fact that NRG submitted its application in spite of knowing the County Law section 84.29, speaks to its deep pockets and self-righteous confidence. I will go through the items one by one:

52-15 **"of a sufficiently small size."** This is twice the size of the enormous facility at Kramer Junction. No way does "small" apply to this giant.

52-16 **"provided with adequate setbacks."** The setbacks are in accordance with law, but inadequate for our community because of the 20-ft height of the panels. Figures 2, 3, 5, and 6 substantiate this.

52-17 **"designed to be lower profile than otherwise permitted."** These are designed to be 20 ft high. "Lower profile" could more reasonably be 5 ft. Figures 3 and 6 should be sufficient evidence to squelch any attempt to justify this folly.

52-18 **"sufficiently screened from public view etc."** They are visible from every viewpoint and for many many miles away. Only 20 ft high walls could screen them. and then the views would still be lost. The see-through chainlink fences will be 6 ft high; slats inserted in the links will have no effect.

52-19 **2) Proposed fencing, walls, landscaping, and other perimeter features of the proposed commercial solar energy generation facility will minimize the visual impact of the project so as to blend with and be subordinate to the environment and character of the area where the facility is to be located.**

This possibility is not addressed in the EIR or in the project design because it is impossible to minimize the visual impact of this behemoth, or to make it blend with and be subordinate to the environment. Here is what the EIR has to say in section 3.1-62-64 about that under "cumulative aesthetic impacts," those impacts resulting when a landscape becomes monotone, losing its vibrant character.

52-20 **"Impact 3.3-5. The project would not result in cumulative aesthetic impacts. Impacts would be less than significant." [EIR p. 3.1-62]**

The EIR talks of "cumulative effects" that could occur **"if viewers perceive that the general visual quality or landscape character of a regional area is diminished by the proliferation of visible similar structures or construction . . ." [EIR, p. 3.1-63]**

This means that people prefer vistas that have a variety of shapes and tones. Mile after mile of metallic solar panels equals a cumulative impact. 750,000 solar panels lined up row after row become the most significant feature of the landscape. The EIR recognizes this and dismisses it. I don't.

One more quote (though I could go on and on) that shows how ignorant the writers are about deserts.

52-21 **"However, given the low scenic quality of the area based on the numerous existing visual encroachments and the low to moderately low degree of visual change expected from the Minneola Solar Project, Solar 33 Project, Solar 66 Project** *[where did these designations come from? Did they forget who they are writing for?]*, **and the proposed project, substantial cumulative damage to scenic resources within a state scenic highway is not anticipated. Cumulative impacts would be less than significant." [EIR p. 3.1-63-64]**

Taking away the iconic views of deserts and mountain ranges from our state scenic highways and replacing them with miles and miles of solar panels is a substantial cumulative impact!

Page 6 of 8 - Daggett EIR Comment, by Vickie Paulsen (resident of Newberry Springs)-
Aesthetics and Visual Resources

Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

52-22 Figures 5 and 6 show the impact of the solar panels on our viewscape. This would be the case wherever the panels are in view on Valley Center, Minneola, Chloride, National Trails, I-40, Hidden Springs, etc.

Another obvious tactic was to choose Key Observation Points (KOPs) that are far from "key" for us. KOP 5a, for example, at Condor Road and Valley Center. Of course the EIR photosimulation shows no panels. There are berms in the way and the project is about a mile to the west and south. However, as residents on Condor (and Newberry Springs) turn onto Valley Center and drive west toward Minneola, Fig. 5 is what they see now (note the man with the 10 ft pole), and Fig. 6 is what they and everyone traveling on Valley Center will see. This also applies to **four miles** of Minneola south of Valley Center, and the Chloride/Minneola neighborhood. [Review Fig. 3 for a look down Minneola.]

52-23



Fig. 5

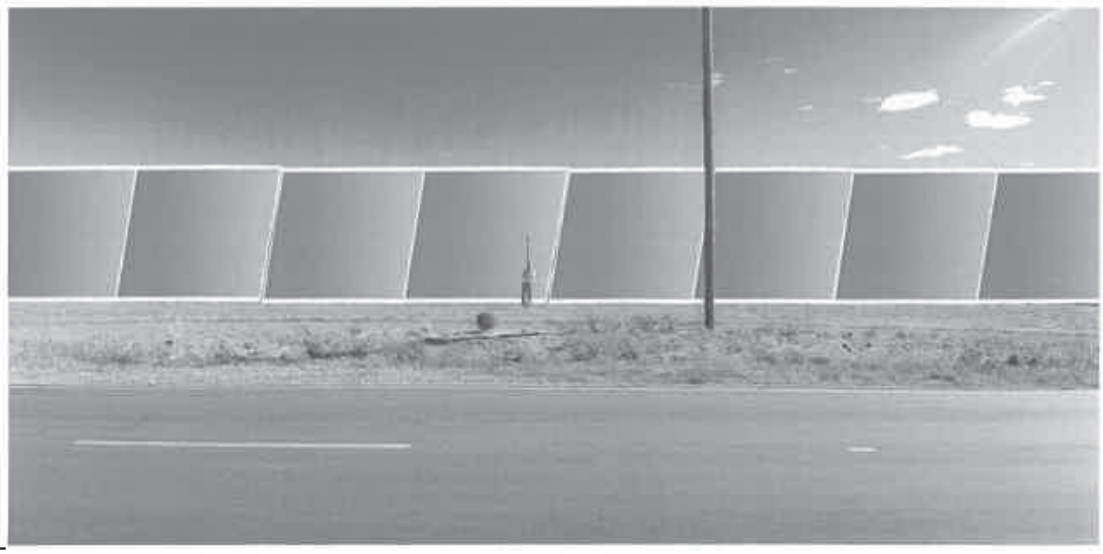


Fig. 6

Page 7 of 8- Daggett EIR Comment, by Vickie Paulsen - Aesthetics and Visual Resources
Appendix B-1, VISUAL IMPACT ASSESSMENT and
Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

(3) The siting and design of the proposed commercial solar energy generation facility will be either (A) unobtrusive and not detract from the natural features, open space and visual qualities of the area as viewed from communities, rural residential uses, and major roadways and highways, or
(B) located in such proximity to already disturbed lands [etc.] . . . that it will not detract from the . . .visual qualities of the area.

KOP 2 (Figs. 7 & 8) at the I-40 onramp at Hidden Springs looking north. It is a beautiful view of desert and airport with both color and height variations and the Calico Mountains in the background. The EIR simulation gives an idea of the extensive coverage of the panels, but at the 10 ft height instead of the actual 20 ft height. Even with mitigation efforts, the panels and the metal holding them would appear shiny (not reproducible in a photograph) and would be the strongest visual element in the landscape.

We have all passed small solar projects, including Solar I in Daggett, and know their negative visual impact that replaces any beauty that was there. The variations in desert colors, like an Impressionistic painting, would disappear in a monotone of bright silver for miles and miles.

52-24



Fig. 7 same view as EIR sim (below) with true colors and without panels.



Fig. 8 EIR, I-40 W onramp at Hidden Springs showing simulation. Please realize that the camera and printer cannot show how the panels shine.
Note the faded colors that aren't true, perhaps by design.

52-25

84.29.040 (f) Project Notices. Notice of an application for approval . . . shall be provided to . . . any Community Service District . . . serving the site, and to all property owners . . . within the following parameters:

(1) Area to be notified: Owners of property . . . located up to 20 separate parcels away but not to exceed one quarter mile (1,320 ft), whichever is greater.

Page 8 of 8- Daggett EIR Comment, by Vickie Paulsen (resident of Newberry Springs)-
Aesthetics and Visual Resources
Appendix B-1, VISUAL IMPACT ASSESSMENT and Appendix B-2, ADDENDUM TO VISUAL IMPACT ANALYSIS
DEVELOPMENT CODE 84.29

52-25

Cont'd

As a Director of the Newberry Community Services District, I know that no notice was received of this project or the availability of the EIR for comments. Throughout the process, residents themselves have had to continually be alert to online postings by LUS about projects slated for the area. Only by a few "mistakes" by LUS did we learn about this project in time to prepare for the scoping meeting last year.

It is also possible that not all residents of the Minneola neighborhood were notified because at a recent meeting they were surprised to learn about the EIR and the deadline for comments. These are violations of the law.

52-26

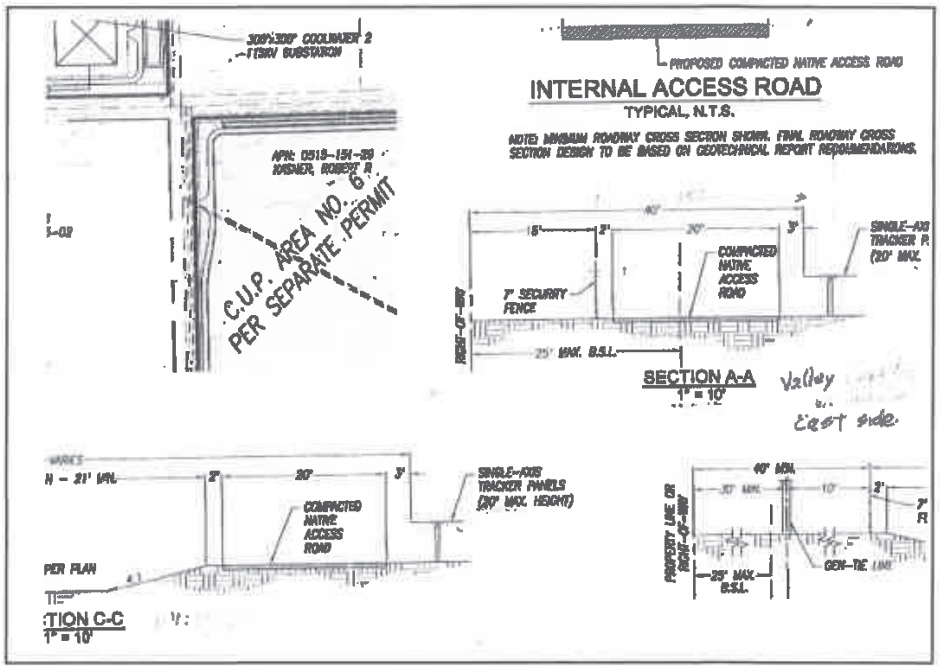


Fig. 9 is from the EIR plan maps done by Bonadlman for NRG, Bennett, and HDR . It shows the height of the solar panels at 10 ft, which is probably why the photo simulations show 10 ft panels. This is, of course, a lie, or at least a misleading drawing.

Vickie Paulsen
43843 Valley Center, Newberry Springs, CA 92365
760-447-2118 • words4fun@gmail.com

April 19, 2019

To: Tom Nievez, Contract Planner
San Bernardino County Land Use Services

Subject: Comment about the Environmental Impact Review for the Daggett Solar Project

Focus: Biological Impacts 3.4 and Alternative Sites 4.0 (Page 1 of 3)

52-27 The Tri Colored Blackbird is a state-protected species, and though the EIR [p. 3.4-21] states that they are **"highly mobile and would leave any active construction sight as activities begin,"** I can assert with complete confidence that the birds' presence in Newberry Springs is well known and helps make our community a magnet for birders and tourists. The Audobon Society has been actively helping with habitat education at one site that I know of on Silver Valley - perhaps there are more.

52-28 Another special status species is the Mojave Fringe Toed Lizard. The EIR claims [p. 3.4-9] that it **"is restricted to areas with fine, aeolian sand, including both large and small dunes, margins of dry lakebeds and washes, and isolated pockets against hillsides."** I have Fringe Toed Lizards in my garden where they forage among the plants. I live 4 miles east of Minneola on Valley Center and have no small or large sand dunes. My property is 1.5 miles south of the BLM Area of Critical Environmental Concern that includes Fringe Toed Lizards, evidence of a wider range and habitat than claimed.

52-29 Bats are an incredibly important part of the ecosystem of Newberry Springs. I am not sure if my bats are Townsend's big-eared bats, a state protected species, but I know that they prey on many insect pests that I am pleased to have them eat. "A single bat can catch hundreds of night-flying insects in an hour. Various kinds of bats are also serious pollinators of plants and flowers." [*AZCentral*, May 18, 2014] They are also lovely companions as I sit on my patio at sunset and watch them flitting about doing their job.

52-30 The EIR states [p. 3.4-8] that no Townsend's big-eared bats were found on site in the spring 2018 surveys, but that their presence **"has been documented within 6 miles of the site."** Perhaps the bats were busy at my house at that time, which is 4 miles east of Minneola.

Collisions

52-31 Studies tend to play down the danger of birds and bats colliding with solar panels because their carcasses aren't found in abundance during infrequent searches. The Watson study cited in the EIR [p.3.4-23] was for concentrated power facilities. Of course those facilities kill birds, and not from the "lake effect," but by incinerating them.

From Vickie Paulsen, 19 April 2019 EIR
Comment on 3.4 Biological Impact at
Daggett Solar Facility
Pg. 2 of 3

When a Yuma clapper rail turned up dead at the Desert Sun Solar Farm in Riverside County CA, a lawsuit developed and attention began to be paid to the lake effect.

"The attorney cites findings from the federal investigation report, which showed that the Yuma clapper rail had been killed at First Solar's 4,400-acre Desert Sun Solar Farm in California's Riverside County. The facility uses a 550-megawatt photovoltaic array that produces clean electricity for Californian utility customers. (The group also cited a media report of another Yuma clapper rail death at a similar facility.) Birds can be killed when they smash into the facility's solar panels, the investigation concluded."[*Scientific American*, 27 August 2014] Desert Sun is larger than the Daggett project by about 1000 acres.

52-32

Birds and bats can mistake the smooth surface of PV panels for water. According to the EIR, **"this rate of mortality, if calculated for all solar facilities in Southern California, is far lower than other common causes of avian mortality, such as collision with transmission lines, predation trauma, electrocution, and emaciation; the cause of death frequently could not be determined or was not reported. Avian collisions with solar panels are not considered significant on a population level."**

52-33

Good. The entire population of birds and bats will not be obliterated by the solar project. Just some of them, and you can add transmission lines and electrocution to the hazards.

I appreciate that the EIR mentions mitigation efforts that might work well on a 100 acre site, but five square miles (3500 acres) may be more than the entire range of a Fringe Toed Lizard and other species. I can picture the Tri Colored Blackbird foraging in vain among the 750,000 solar panels. Where are the little critters that used to be found there? The ground was wiped clean (but not "scraped"), mowed and 5,900,000 cubic yards of dirt (habitat) moved around and flattened so that steel or cement pylons could be pounded six to ten feet into the ground. In vain do the ground squirrels and darkling beetles search for a hospitable environment when all the mitigations have been in vain. Invasive plants spring up when the natives are gone. Creosotes with their tough tire-ripping roots are torn from the ground and crushed by the mowers, never to return.

52-34

Reclamation Afterwards

The project will last 30 years and then be put back to its pre-project state, the EIR claims, though somewhere, I recall, they admit that it's close to impossible. That is correct. The desert takes hundreds of years to recover from damage. Fallow alfalfa fields show this, having weathered years of chemical fertilizers, scraping, plowing, etc., so that no native flora can survive there. Native American trails can still be seen hundreds of years later (Old Spanish Trail area). The damage done to the various species of plants and animals over these five square miles will not be mititated by any of the proposed actions.

52-35

From Vickie Paulsen, 19 April 2019 EIR
Comment on 3.4 Biological Impact and
4.0 Alternatives at Daggett Solar Facility
Pg. 3 of 3

Alternatives to the Project

According to EIR (p. 4-15), **"Alternative 2 would avoid solar development on approximately 2,485 acres of land within the project site. The impact on views from scenic highways, including Route 66 and I-40 would be reduced with implementation of Alternative 2 because the solar facility footprint would be substantially reduced, which would reduce the extent and duration of views of the solar and energy storage facilities from scenic highways. The alternative would also reduce the change in visual quality from nearby public roads because the extent of land conversion would be substantially minimized and the use of public roads with views of the solar facility would be reduced."**

52-36

This would be my third choice. I could live with it, and so could most of the affected animals, birds, and plants because, though large, it is a size that allows them to travel beyond the boundaries into better habitats. It is not, like the original, what they might consider a whole world taken over by miles and miles of metal and glass, flattened soil and roots upended, burrows and perches mowed down.

It might produce enough electricity to help NRG reach its goal of helping California produce more, even though California's goal has been met, according to SCE (references sure to be found in other peoples' comments).

To solve the water problem, buy all water pumping rights and retire them forever.

52-37

My second choice would be **Alternative 3, Kramer Junction**, where solar is already set up and operating. Why wasn't this NRG's first choice instead of Daggett and Newberry Springs? The statements throughout the EIR report show how little city and industry people know about this community and the desert environment.

52-38

My first choice is **Alternative 1, Do Nothing.** Leave us and the land and the wildlife alone. There's nothing here for you. Go away. Buy and retire all water pumping rights there so we don't go dry.

52-39

Thanks for the opportunity to comment on this project,

Vickie Paulsen

52 VICKIE PAULSON

52-1

Comment Summary:

This comment states that there are three comments attached to the email regarding various sections.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-2

Comment Summary:

This comment describes the condition of I-40. The comment states that the project applicant should pay for any damage to I-40 associated with the project.

Response:

The EIR is not required to evaluate long- and short-term economic effects of the project on the local roadway system. This comment does not challenge the adequacy of the EIR relative to CEQA-related environmental issues that can be addressed in this response.

52-3

Comment Summary:

An attached file is included with additional comments.

Response:

The attached comments are included in the record as Letters 52. Please refer to responses to those letters.

52-4

Comment Summary:

This is the introductory statement of the letter.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-5

Comment Summary:

The comment states that HDR and NRG are not qualified to adequately assess visual and aesthetic impacts in Newberry Springs.

Response:

Please refer to Master Response 7 for more information on the methods used to perform the visual analysis in the EIR. All visual assessments were peer-reviewed by the County's EIR consultant, Michael Baker International, as well as County staff. In their current state, the reports represent the independent judgement of the County.

52-6

Comment Summary:

This comment disputes text in the EIR that describes the project site and surrounding areas.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-7

Comment Summary:

The comment expresses disagreement with the finding of no significance in Section 3.1, Aesthetics and Visual Resources. The comment states that the photos submitted as part of the letter demonstrate that there is a significant visual impact from the project. The comment then states that the project "flaunts the high standards written into law by the County in 2014" and conflicts with the RECE 4.10.

Response:

Please refer to Master Response 7 regarding the visual analysis methodology. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response. It is unclear to what 2014 County law the commenter is referencing; therefore, a response cannot be provided. Please refer to Response 49-5 regarding the RECE Policy 4.10.

52-8

Comment Summary:

This comment states that the visual simulations in the EIR are incorrect. The commenter provides a visual simulation that she created that she states depicts the project more accurately.

Response:

Please refer to Master Response 7 and Response 26B-10 for more information on the findings and methods used in the visual analysis. Section 2.2.1 of **Appendix B-1** of the EIR, and **Appendix A**, Figures A1 and A2 show typical solar array and tracker panel layouts, respectively. Typical layouts were shown because, as stated in Section 2.2.1, specific equipment for the proposed project would be determined prior to construction. Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade.

52-9

Comment Summary:

This comment cites text from the County Development Code, Section 84.29.035(a).

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-10

Comment Summary:

This comment contains the two figures referenced in Comment 52-8.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response. Refer to Master Response 7 and Response 26B-10.

52-11

Comment Summary:

This comment states that the commenter will focus on the section of Development Code 84.29.035 that pertains to visual and aesthetic effects.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-12

Comment Summary:

This comment cites text from Development Code 84.29.035. The commenter states that the environment in Newberry Springs is far different than anywhere else.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-13

Comment Summary:

This comment cites text from the EIR that states that there are over 100 rural residents within 0.5 miles of the project site. The comment states that the local residents are afraid that the project would reduce their property values. The comment states that the applicant should be held responsible for repaying any loss to all residents.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). The comment does not raise any new environmental concerns nor address the adequacy of the EIR.

52-14

Comment Summary:

This comment provides photos of local residences within a few hundred yards of the project. This comment states that the project does not meet (1)(B).

Response:

Comment noted for the record. Responses to this comment are provided in Responses 52-15 through 52-18.

52-15

Comment Summary:

The comment disputes that the project is of a sufficiently small size.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-16

Comment Summary:

This comment states that setbacks are in accordance with the law, but "inadequate for our community."

Response:

The setbacks are in accordance with the law. Please also refer to Response 26B-10.

52-17

Comment Summary:

The comment addresses the project profile height and recommends a solar panel profile height of 5 feet rather than 20 feet.

Response:

Section 2.2.1 of **Appendix B-1** of the EIR, and **Appendix A**, Figures A1 and A2 show typical solar array and tracker panel layouts, respectively. Typical layouts were shown because, as stated in Section 2.2.1, specific equipment for the proposed project would be determined prior to construction. Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade.

52-18

Comment Summary:

The comment states that the project is not sufficiently screened from view.

Response:

Comment noted for the record. The commenter's objection is subjective in nature and does not challenge the adequacy of the EIR. Please refer to Master Response 7 for additional information about the analysis of visual resources.

52-19

Comment Summary:

This comment states that it is impossible to minimize visual impacts from the project.

Response:

Comment noted for the record. The commenter's objection is subjective in nature and does not challenge the adequacy of the EIR. Please refer to Master Response 7 for additional information about the analysis of visual resources.

52-20

Comment Summary:

This comment states that "solar panels equals a cumulative impact" because the solar panels would be the most significant feature of the landscape.

Response:

As stated under Impact 3.1-5 in the EIR, the low scenic quality of the area based on the numerous existing visual encroachments and the low to moderately low degree of visual change expected from development of the identified cumulative projects would not result in substantial cumulative damage to scenic resources within a state scenic highway. Furthermore, analysis in the EIR finds that implementation of the cumulative projects and proposed project would result in a less than significant cumulative impact on visual quality due to the moderately low visual quality of the area. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are inaccurate. Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis and for information regarding Supplemental Visual Simulation KOP 2, which shows views of the site from Hidden Springs Road, south of I-40.

52-21

Comment Summary:

This comment states that the project would have a significant cumulative impact on the state scenic highway.

Response:

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis and for information regarding Supplemental Visual Simulation KOP 2, which shows views of the site from Hidden Springs Road, south of I-40. Please also refer to Response 14-1 for more information.

52-22

Comment Summary:

This comment states that Figures 5 and 6 (provided in letter) show the impact on the viewscape.

Response:

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis and for information regarding Supplemental Visual Simulation KOP 2, which shows views of the site from Hidden Springs Road, south of I-40. The visual simulations in the EIR include three-dimensional (3-D) visual simulations from each KOP that were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Using the photographs acquired at KOP 1 through KOP 6, a 3-D physical massing model

was created that incorporated the PV scale model, placed in array configurations as shown in the site plan provided in **Exhibit 2.0-2, Project Site.**

Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade. The figures provided in the comment letter do not use visual simulation protocol and are not representative of the project impacts.

52-23

Comment Summary:

The commenter disagrees with the Key Observation Points (KOPs) selected in the EIR.

Response:

Visual impacts are properly analyzed and described in the EIR. Please refer to Response 26B-10 and Master Response 7 for more information on the findings and methods used in the visual analysis.

52-24

Comment Summary:

The commenter disagrees with the Key Observation Points (KOPs) selected in the EIR.

Response:

Visual impacts are properly analyzed and described in the EIR. Please refer to Response 26B-10 and Master Response 7 for more information on the findings and methods used in the visual analysis.

52-25

Comment Summary:

This comment states that the Newberry Community Services District did not receive notice of the project or availability of the EIR public comment period. The commenter also states that not all residents of the Minneola neighborhood were notified.

Response:

All noticing for the EIR was done in compliance with CEQA and County Standards. A copy of the DEIR was hand-delivered to Newberry Springs Community Services District. Please refer to Letter 1 from the State of California Governor's Office on Planning and Research State Clearinghouse and Planning Unit.

52-26

Comment Summary:

This comment references an exhibit from the EIR that depicted the height of the solar panels at 10 feet. The commenter states that this is misleading.

Response:

Since the publication of the DEIR, the project applicant has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade. Therefore, the exhibits provide a good faith effort and most reasonable assumptions for visual modeling. Please refer to Master Response 7 regarding methods used in the visual analysis.

52-27

Comment Summary:

This comment states that the tricolored blackbird is a state-protected species. The commenter states that the species is commonly found in Newberry Springs and that it attracts tourists and bird watchers.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-28

Comment Summary:

This comment states that the Mojave fringe-toed lizard is a special-status species. The commenter states that her property is 1.5 miles south of the BLM ACEC which the commenter claims is evidence that the lizard's range and habitat is wider than stated in the EIR.

Response:

Mojave fringe-toed lizards are not anticipated to occur on-site due to the presence of higher quality habitat off-site. Please refer to Response 2A-9 regarding Mojave fringe-toed lizard.

52-29

Comment Summary:

This comment states that bats are an important species in the ecosystem of Newberry Springs.

Response:

Please refer to Responses 2A-11 regarding potential bat impacts. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-30

Comment Summary:

This comment cites text from the EIR that states that Townsend's big-eared bats were not found on-site, but their presence has been documented within 6 miles of the site. The comment states that the bats may have been at the commenter's house at the time of the survey.

Response:

Please refer to Response 2A-11 regarding potential bat impacts. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-31

Comment Summary:

This comment states that studies downplay bird and bat mortalities at solar power facilities. The comment states that the study used in the EIR is from a different type of solar power facility, concentrated solar, which doesn't cause mortality via the lake effect but instead by incineration.

Response:

Please refer to Responses 2A-11 and 2A-12 regarding avian impacts due to the lake effect. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-32

Comment Summary:

This comment references bird mortalities from the lake effect at another solar power facility in Riverside County.

Response:

Refer to Response 2A-11 and 2A-12 regarding avian impacts due to the lake effect. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-33

Comment Summary:

This comment cites text from the EIR regarding the lake effect. The commenter then states that bird mortalities would occur from the project and transmission lines.

Response:

Please refer to Response 2A-12 regarding avian impacts due to the lake effect. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

52-34

Comment Summary:

This comment states that desert species would have a hard time foraging on the site after the site has been graded. The commenter states that invasive species may also take the place of the creosotes after they are removed.

Response:

Native vegetation would be free to grow on-site during operations and encouraged if necessary under implementation of mitigation measure **BIO-6**. Decommissioning would include a revegetation plan with native plant species; see mitigation measure **BIO-7**.

52-35

Comment Summary:

This comment states that the desert takes hundreds of years to recover after damage. The comment states that impacts to the desert would not be properly mitigated after decommissioning.

Response:

As stated in mitigation measure **BIO-7**, prior to commencement of the decommissioning phase, the project applicant shall prepare a revegetation plan as part of the Decommissioning Plan to identify performance standards necessary for revegetation of the site with native plants. The Decommissioning Plan shall specify success criteria, including, but not limited to, site preparation methods, installation specifications, maintenance requirements, and monitoring/report measures to ensure certain botanical thresholds are met such as adequate cover, density, and species richness. Standards of success shall include at least a 50 percent revegetation success rate compared to baseline conditions and shall include annual monitoring for 2 years. If 50 percent revegetation has not been achieved within 2 years due to lack of water or other environmental factors, the applicant shall work with the County to identify and implement an alternate solution to achieve the identified success rate or effective stabilization.

Therefore, specific seed mix of the revegetation plan has yet to be approved. Furthermore, success rate criteria shall include annual monitoring and a 50 percent success rate which would ensure the site is properly revegetated after decommissioning. It would be in the project applicant's best interest to choose the correct seed mix and watering plan.

52-36

Comment Summary:

The commenter states that her third choice would be Alternative 2. The commenter also states that the applicant should purchase and retire the water pumping rights.

Response:

As indicated in Section 4.0, Alternatives to the Proposed Project of the EIR, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin.

52-37

Comment Summary:

The commenter states that her second choice would be Alternative 3 because solar is already set up and operating at this location.

Response:

As indicated in Section 4.0, Alternatives to the Proposed Project of the EIR, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project.

52-38

Comment Summary:

The commenter states that her first choice would be Alternative 1. The commenter states that the applicant should buy and retire the water rights even though the applicant wouldn’t develop the land in this scenario.

Response:

As indicated in Section 4.0, Alternatives to the Proposed Project of the EIR, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project. Please refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin.

52-39

Comment Summary:

This is the conclusion of the letter.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

Nievez, Tom

From:	Alisa Ramakrishnan <alisa.ramakrishnan@gmail.com>
Sent:	Thursday, April 25, 2019 9:42 PM
To:	Nievez, Tom
Cc:	Vickie Paulsen
Subject:	industrial solar in Newberry Springs

Dear Mr. Nievez,

53-1 I'm writing about the new industrial solar installation planned for Newberry Springs. The Mojave Desert is a beautiful, wild, and astonishingly alive place. It is not a wasteland to be pillaged. People come from thousands of miles away to experience the unique views, open landscapes, and endemic plant and animal life. Another enormous, industrial solar installation is completely unnecessary. The negative impact such an installation

53-2 would have is forever irreparable, while the positive effects are nonexistent for the community in question. If solar power is such a necessary thing, build smaller-scale installations on existing buildings and parking lots to minimize the cataclysmic impact of an industrial installation. Aren't there other installations in that area that

53-3 aren't working anymore, and are now simply clogging up the land, useless to indigenous plants, animals, and the people who love the area? Don't keep doing something that doesn't work.

Sincerely,
Alisa Ramakrishnan, PhD
128-2450 161A St
Surrey, BC V3Z 8K4
Canada
604-379-1519

53 ALISA RAMAKRISHNAN

53-1

Comment Summary:

This comment states that the Mojave Desert contains natural resources that encourage tourism, and voices general opposition to the project.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

53-2

Comment Summary:

This comment states that the project would have a negative impact and may not have a positive impact.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

53-3

Comment Summary:

This comment states that the project is not necessary, and that the project may not be viable.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

April 23, 2019

My name is Kathy Ridler. I have been a resident of Newberry Springs for 28 years. I love my quaint little community. I realize it is a severely economically disadvantaged community (including surrounding community of Daggett) and I worry that the construction of the Daggett Solar Project(s) might make my community even more disadvantaged. I would like to take this opportunity to address a few of my concerns, in referencing the County of San Bernardino's Draft EIR that pertains to the Daggett Solar Project(s).

54-1

I appreciate your time and review of my letter.

Thank You

Appendix B-1 Visual Impact Assessment – many people from around the world come to drive the majestic Route 66 – I'm sure none of them are there for the unsightly solar panels. In addition to the unsightly solar panels what about the glare created by the panels for oncoming aircraft and trains looking for signal blocks? I personally prefer to see the wide open desert without the view being obstructed by the panels that cover the estimated 3500 acres. In removing the natural plant life IE; creosotes for one you are disrupting the natural ecosystem these plants create not to mention the housing of small wildlife. Our alfalfa farmers have served our community for decades plus provide a high quality feed for those of us who have livestock. Another impact not accounted for in this report.

54-2

54-3

Appendix D-1 Air Quality Technical Report – One has to only drive by the 22 acre abandoned solar project on Mt.View in Newberry Springs and see the damaging affects the blowing sand created for downwind residents. Mona Doles has fought this hazard continuously (piles of sand building up, plant life dying off, respiratory issues for livestock and residents) If 22 acres can create such havoc gosh let's all imagine what 3500 acres can do then throw in one of the high deserts 40 to 50 mile an hour winds and yuck. Visibility gone, groomed yards gone, livestock impacted and yes residents hiding in their homes hoping someone will dig them out afterwards. It does not appear your list of mitigation measure allow for the capture of blowing sand regardless of how tall a fence you build or how large the air filters you install. I'm sorry no amount of mitigation will control the fugitive dust. Here is a thought – CONSTRUCT IT ELSEWHERE

54-4

Appendix E- 3 Desert Tortoise Pre-Project Survey Report – now this one does make me laugh – in the event a desert tortoise is discovered we will halt any and all job site work to call the California Department of Fish and Wildlife so they may advise/remove/relocate desert tortoise. HA HA Let' ask the military at Ft. Irwin what great lengths they had to go through to re-route an existing road without disturbing, distrusting or endangering the desert tortoise and by golly they did. Have rules relaxed that much or has the desert tortoise taken a back seat to " progress". This theory applies to the burrowing owl(s). February to September they cannot be disturbed after that they are relocated – owls have a tendency to return to their burrows what mitigation is planned for that action. The kit foxes of our area thrive in the area in question, great sources of food and water. Is the plan to dump them somewhere that doesn't support their needs like food and water. The following is the basis for the desert kit fox being put on the protected and endangered species list:

54-5

54-6

You can see the keyhole-shaped entrances of kit fox burrows scattered across a wide area of California's Mojave and Colorado deserts. But these wild-canine quarters are increasingly empty — or destroyed — due to large-scale industrial energy development rapidly on the rise across the kit fox range. Even smart, climate-saving clean-energy development like solar projects are often badly sited and destroy important kit fox habitat — and also, possibly, help spread kit fox-killing diseases like canine distemper: In Riverside County in 2011 and 2012, the first-ever documented outbreak of the disease in desert kit fox caused a local die-off when it hit desert kit foxes in an area surrounding the Genesis Solar energy development site. Other threats to the foxes abound, including grazing, urbanization, agriculture, climate change and

54-7

mortality from vehicles on roads that are increasingly crisscrossing their range — as well as off-road vehicles that drive over dens, potentially causing cave-ins that crush kit fox pups.

54-7 Cont'd **To defend the desert kit fox and its dry, scrubby, but ecologically vital habitat, in March 2013 the Center petitioned California to protect the desert kit fox as threatened under the California Endangered Species Act. State protection would afford this cute, keystone creature a better chance at surviving the California energy-development boom.**

54-8 If I were to look outside right now I would see the migration of hundreds of monarch butterflies soaking up the sun and feeding on the blooms of local agriculture. What a glorious sight they are I would sure hate to trade their beauty for an unsightly solar panel.

54-9 Appendix F-1 – Cultural Resource Inventory – It is stated that this is CONFIDENTIAL APPENDIX – NOT AVAILABLE FOR PUBLIC REVIEW- this is very alarming since transparency is key to these proceedings and documents. Why would any prehistoric or historic remains or indicators of past human activities be NOT AVAILABLE FOR PUBLIC REVIEW?

54-10 Appendix G – Preliminary Geotechnical Engineering Report – 3.6-2 "would the project result in substantial soil erosion or the loss of top soil" Again I laugh HAHA. Have none of the individuals involved in the EIR Draft for Daggett Solar 1 been to Mona Doles residence? Have they not seen the significant disturbance of top soil and extreme loss of top soil. To say that it is less than significant is just a bold lie.

54-11 On Item 3.6-6 I am not clear on what "would the project would not result in cumulative impacts related to geology and soils?"

54-12 Appendix I-3 – Water Supply Assessment – really, first off let's talk about Owens Valley and Mulholland. The uniqueness of the Mojave River is it runs uphill and the downhill Mulholland's have dammed and tapped into our main water vein. Then you have agencies like the Water Masters saying WE use too much of their water. BUT it's ok to have a large solar project jump in and suck down our water table with NO benefit at all to the community. Yes our farmers use water, BUT they pay taxes that go to the community, they provide a product that is used locally and in local feed stores which again creates taxes. You can't tell me the residents of Owen's Valley would have approved the water depletion if they had a say in their water being depleted. We, the residents of Newberry Springs and Daggett do have a say, NO MORE.

54-13 Last but not least may we please enforce San Bernardino County Policy 4.10

54-14 Solar Projects that do not reduce local residents' electric bill or even stay in the state to lower a neighboring community's electric bill just isn't smart.

Think past the bottom line of "wow look how much money we can make" and think about the communities, residents, animals and lives you will scar with your decisions.

Thank You

Kathy Ridler
43023 Coventry Street
Newberry Springs CA 92365

54 KATHY RIDLER

54-1

Comment Summary:

This is the introductory comment of the letter. The commenter states that Newberry Springs is an economically disadvantaged community.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to the California Environmental Quality Act (CEQA). CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

54-2

Comment Summary:

This comment states that people come to travel the Historic Route 66. The comment states that the solar panels would create glare to oncoming aircraft and trains. The commenter states that she would rather see views of the desert unobstructed.

Response:

Please refer to Response 14-1 regarding impacts to Historic Route 66. Additionally, please refer to Master Response 6 for more information on the glint and glare analysis in the EIR.

54-3

Comment Summary:

This comment states that the project would disrupt the natural ecosystem by removing native plants, such as creosotes. The comment also states that the project would disrupt alfalfa farmers and that this is not considered in the EIR.

Response:

As stated under Impact 3.4-1 of the EIR, no special-status plant species were observed within the proposed development footprint on the project site. Therefore, no direct or indirect impacts are anticipated. Conversion of farmland to non-agricultural use is discussed in Impact 3.2-1 beginning on page 3.2-8 of the EIR. The impact is determined to be less than significant. The comment does not provide additional, specific information on how the project would impact alfalfa farmers that can be addressed in this response. Refer also to Responser 26B-25.

54-4

Comment Summary:

This comment references another solar project located on Mt. View Road in Newberry Springs. The commenter states that the project would result in blowing sands and dust that would impact visibility and air quality. The commenter disagrees with the effectiveness of the air quality mitigation measures listed in the EIR.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Please also refer to Master Response 8 regarding impacts related to windblown materials.

54-5

Comment Summary:

The comment expresses disagreement with mitigation measures for desert tortoise from the EIR.

Response:

Please refer to Response 2A-6 through 2A-8 regarding desert tortoise impacts and mitigation measures.

54-6

Comment Summary:

This comment states that burrowing owls have a tendency to return to their previous burrows after they have been relocated. The commenter asks if there is mitigation for when they potentially return.

Response:

Please refer to Response Responses 2A-17 through 2A-19 regarding burrowing owl impacts and mitigation measures.

54-7

Comment Summary:

This comment states that desert kit fox thrives within the project area. The commenter then cites text on why the desert kit fox was placed on the endangered species list.

Response:

Please refer to Response 2A-19 and 2A-20 regarding potential desert kit fox impacts and mitigation measures.

54-8

Comment Summary:

This comment states that migrations of monarch butterflies can be seen in the desert and that the butterflies would not like the solar panels.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

54-9

Comment Summary:

This comment questions why the Cultural Resource Inventory is confidential.

Response:

As the Cultural Resource Inventory contains sensitive material, such as location of identified cultural and tribal cultural resources, the report is kept confidential to protect the sensitive resources from exploitation by unscrupulous "treasure hunters." A licensed archaeologist on the County approved list may review the report in its entirety at the County office.

54-10

Comment Summary:

The comment expresses disagreement that there would not be substantial erosion or loss of top soil as a result of the project.

Response:

Contrary to the commenter's assertion, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 regarding air quality impacts and mitigation measures and Master Response 8 regarding impacts related to windblown materials.

As stated under Impact 3.9-3 of the EIR, the project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion. The commenter does not provide substantial evidence to support the claim that the findings in the EIR are incorrect.

54-11

Comment Summary:

The comment states that the text from Impact 3.6-6 is unclear.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

54-12

Comment Summary:

This comment states the residents of Newberry Springs and Daggett have a say on water supplies.

Response:

Potential impacts to the groundwater basin were analyzed and described in Impact 3.9-2 beginning on page 3.9-15 of the EIR. Impacts to the groundwater basin are found to be significant and unavoidable due to the potential for localized shifts in groundwater levels that could result if the current landowners either transfer or shift their existing FPA to the east side of the Calico-Newberry Fault. However, as noted in the EIR, these impacts could occur with or without the approval of the project. Please also refer to Master Response 5 regarding water rights and potential impacts to the groundwater basin and Responses to Comments to Letter 3 (Watermaster letter).

54-13

Comment Summary:

This comment states that the project must comply with San Bernardino County Policy 4.10.

Response:

Section 3 of Resolution No. 2019-17 of the Amendment of the Renewable Energy and Conservation Element of the General Plan, adopted by the Board of Supervisors on February 28, 2019, stipulates that "any application for development of a renewable energy generation project that has been accepted as complete in compliance with California Government Code Section 65943 before the effective date of this Resolution shall be processed in compliance with the policies and regulations in effect at the time the application was accepted as complete." The application for the Daggett Solar Power Facility was deemed complete on March 22, 2018 and thus the pre-amendment policies and regulations apply to the project.

Regardless, the project is consistent with many of the policies contained in the RECE, including that it is located on disturbed land, adjacent to existing utility infrastructure, near existing industrial development including an airport, and is not within an adopted Community Plan area. Tables 3.10-2 and 3.10-3 in the EIR summarize the project's consistency with these policies.

54-14

Comment Summary:

This comment states that the project would not reduce the local residents' electric bill.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

Nievez, Tom

From: MARGIE ROBERTS <mommamarg@yahoo.com>
Sent: Monday, April 29, 2019 2:28 PM
To: Nievez, Tom
Subject: Daggett Solar Power Facility (State Clearinghouse No. 2018041007) ERI Report

My name is Margie Roberts. I am a resident of the Minneola Neighborhood listed as part of the above mentioned proposed project.

55-1 I am a 69 year old resident and I am disabled with COPD- Chronic Obstructive Pulmonary Disease. As a result of my disability the mere mention of something that may or may not disturb the soils around my home can be life threatening. The large scale project you propose for our neighborhood would definately be a hazard to all of us residing in an around this project. We would constantly be threatened by sand, soil, dust and debris passing through where the panels are located. I am referring to Section 3.3 of the Environmental Impact Report on this project. The constant air polution proposes a serious health threat to the young and old who live here.

55-2 Please note that while this project is named Daggett Solar Power Facility the location of the proposed panels are located in Newberry Springs. We get no benefit from these panels in our community. No additional funding at all. In fact we lose all the way around. Our small rural community will be surrounded by large obtrusive panels. These are said to be 20 feet high. Our air quality will diminish, our property values will plummet, and as these plummet so will the tax monies that come from our taxes. There is no reason whatsoever, that we would want this to invade our community. It takes plenty from us which will deplete the quality of our lives and leaves no offering in return.

55-3 I urge you that out of all the millions of miles of barren desert available you choose another location for this solar project. I am not against solar- in fact I have solar panels on my home. That is on my roof. Not standing on the ground.

Respectfully Submitted,

Margie Roberts

cc: John Griswold
Paul Deel
Robert Springer Newberry Springs Community Services District
Scott Morgan Director State Clearing House

55 MARGIE ROBERTS

55-1

Comment Summary:

The comment states that the author is sensitive to air pollution, and voices opposition to the project based on air quality impacts and soil disturbance.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Contrary to the commenter's assertion, the EIR fully addressed CEQA requirements for air quality impacts and mitigation measures. Please refer to Master Responses 1 for a complete response regarding this topic and to Master Response 3 for a discussion of the Health Risk Assessment for the project.

55-2

Comment Summary:

This comment raises concerns about the benefit of the project and the visual impact of the project due to 20-foot-high solar panels.

Response:

The visual simulations in the EIR include three-dimensional (3-D) visual simulations from each KOP that were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Using the photographs acquired at KOP 1 through KOP 6, a 3-D physical massing model was created that incorporated the PV scale model, placed in array configurations as shown in the site plan provided in **Exhibit 2.0-2, Project Site.** Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade.

55-3

Comment Summary:

This is the conclusionary statement of the letter.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

Nievez, Tom

From: Robert Shaw <robert_shaw19@icloud.com>
Sent: Sunday, March 17, 2019 8:58 AM
To: Robert L. Berkman
Cc: Nievez, Tom; Pat Flanagan; Steve Mills; Bill Lembright; semerson@scng.com; jnelson@scng.com; SHunt@VVDailyPress.com; SBC Sentinel; louis.sahagun@latimes.com; Martinez, Samuel; County of San Bernardino; Vickie Paulsen; chuckb@sisp.net; 2saveourskyline@gmail.com; Vasseur.Robert@yahoo.com; Newberry Springs; edvcorp@aol.com; Southwest Stories; Linda DeLuca-Snively; adesalvio@mdaqmd.ca.gov; John Poole; Kate Gordon; Rahhal, Terri; Andrade, Eva; Supervisor Lovingood
Subject: Re: Berkman To Nievez 03-16-2019

56-1 Robert, a very good letter stating our objections to these proposed projects. Another issue which is salient; "the added power to the California grid is not needed and the developers are planning to sell the excess provided by these projects to neighboring state entities"!

Regards, Robert Shaw,
Newberry Springs Resident

> On Mar 16, 2019, at 7:22 PM, Robert L. Berkman <ctcdaggett@mindspring.com> wrote:
>
> <Berkman-Nievez:3-16-2019.pdf>
>

56 ROBERT SHAW

56-1

Comment Summary:

The comment asserts that the California grid has too much power and that the excess power would be sold to neighboring states.

Response:

Solar is California's most abundant and lowest cost energy resource and plays a large role in the state's clean energy portfolio. California's growing clean energy economy is creating a modern workforce and driving economic investment across the state.

The Daggett Solar project is essential for the electric grid because it incorporates energy storage, which means California will be able to store the solar energy during the middle of the day and use it in the evening when demand is highest. Most of the power produced by this project will be consumed within California.

In 2018, California enacted SB 100, an ambitious and achievable goal of 100% clean electricity by 2045, including 50% renewable energy by 2030. California state regulators found that the most cost-effective pathway to meet state goals includes adding 14 GW of solar over the next 5 years. As modern clean energy becomes a growing sector of the U.S. economy, the Golden State will continue leading on local jobs, economic investments, and low-cost electricity.

Storage will play a significant role in making it possible. In addition, policies that encourage electric vehicles, car charging, and other forms of electrification will help manage the demand and maximize the value of all resources.

California occasionally sells extra electricity generated to other states during the day and, in return, buys energy from lower cost providers when it needs more power than it is generating. This primarily happens during the springtime when customer demand is low and hydropower generation is at its maximum.

Curtailment is another tool to manage generation. Solar power contracts typically allow curtailment in the event of over-generation, which allows power buyers and sellers in the market to anticipate such events. Even with curtailment, solar energy is the lowest cost way to provide for California's energy needs. The cost of generated solar power is ~3 cents/kWh, not including the environmental benefits, while the cost for "flexible generation" such as gas is close to 10 cents/kWh.

Nievez, Tom

From: Ronnie Shaw <auntronnieshaw@gmail.com>
Sent: Monday, April 15, 2019 11:29 AM
To: Nievez, Tom
Subject: SCH#2018041007 Daggett Solar Power Project

Dear Mr. Nievez,

57-1 After reading the Executive Summary of the Draft Environmental Impact Report, I have the following concerns regarding the proposed Daggett Solar project:

1. The existing Solar plant on Mountain View Rd. in Newberry Springs is burying residents and all the proposed mitigation answers will not stop the sand from blowing. It isn't working on the Soitec, or was promised and not implemented. Will this happen in the Daggett project too?

57-2 2. Will we, in this area get the benefit of the renewable energy to our electric grid?

57-3 3. Again, the dust impacts on our Air quality that are already unbearable, will be 100 times worse.

57-4 4. The Mirror reflections at night might confuse bird migration looking for water. Don't think that was covered in the draft EIR.

57-5 5. There will be a disturbance in the natural migration of animals from south to north.

57-6 6. Best use of our water in the Baja Basin? Don't think so, the water will not keep the sand from blowing and will evaporate instantly.

57-7 7. The County will respond to all written comments during this review period.
Will this actually happen, I did not get any response to the Daggett Notice of Preparation that I sent by email on April 11, 2018.

57-8 8. **** Are we in this disadvantaged community not wanted by the county?
Are we the dumping ground for the county? ****

57-9 I do thank you for including all the comments that were included in the Appendix A in the Draft EIR, my own letters were there too,

57-10 I know you are swamped, but as a concerned resident in Newberry Springs, I am concerned. Please realize that we live in this beautiful part of San Bernardino County. Route 66 goes through our community and people from all over the world come here to visit Bagdad Café.

Thank you for your time.

Veronica Shaw
P. O. Box 280
Newberry Springs, Ca 92365
760-265-0333

57 VERONICA SHAW

57-1

Comment Summary:

The comment states that existing solar projects are having negative effects on Newberry Springs residents, and that past mitigation measures for air quality have not been effective. The comment states that the proposed air quality mitigation measures are not sufficient. The comment does not raise any specific concerns with the proposed air quality mitigation measures.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Please refer to Master Response 1 for a complete response regarding this topic.

57-2

Comment Summary:

The comment asked whether the electricity to be generated will benefit the local grid.

Response:

Power generated will be distributed into the grid. There is no mechanism available to direct the produced energy to the residents of Newberry Springs directly. Energy produced from the project would be distributed to SCE for use by its customers. Therefore, local residents that use SCE service could potentially receive energy from the project, although tracking energy once it enters the grid remains difficult.

57-3

Comment Summary:

This comment states that the local air quality is already negatively impacted by pollution, and the project would increase the amount of dust and air quality impacts facing the community.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Please refer to Master Response

1 for a complete response regarding this topic. Please also refer to Master Response 8 for a discussion of wind-blow materials.

57-4

Comment Summary:

This comment raises concerns about potential biological impacts to migratory birds caused by the nighttime reflections of the project. The commenter states that this was not addressed in the EIR.

Response:

Please refer to Master Response 6 for more information on the glint and glare analysis conducted in the EIR. Please also refer to Response 2A-12 for more information on avian impacts due to the lake effect.

57-5

Comment Summary:

This comment states that the project would create a disturbance for north–south migratory animals.

Response:

As stated under Impact 3.4-4 of the EIR, due to the intervening highways, roadways, and railroad, the active and historic cultivation of 54 percent of the project area, and the very small percentage of the site that qualifies as marginally suitable habitat, the project would not result in significant impacts related to the movements of native resident wildlife species, nor would it result in significant impacts to potential regional or local migratory wildlife corridors/linkages, nor would it impede the use of native wildlife nursery sites.

57-6

Comment Summary:

The comment states that the project is not an optimal use of water resources. The comment states that the water would not be sufficient to prevent sand blowing because it would evaporate quickly.

Response:

The purpose of the EIR is not to find the optimal use of water resources. Air quality mitigation measures described in the EIR are in fact described in more detail in Master Response 1 and in the Responses to Comments to Letter 3 (Watermaster letter).

57-7

Comment Summary:

The comment states that the author did not receive a response to the comments on the Notice of Preparation.

Response:

All comments received during the NOP review period are included in **Appendix A** of the EIR. The comments were categorized by issue and the most common environmental concerns were summarized in Section 1.0, Introduction; EIR Scope, Issues, Concerns of the EIR. All NOP comments were carefully considered during preparation of the EIR; formal responses to NOP letters are not required by CEQA and it is not an industry practice or County requirement to do so.

57-8

Comment Summary:

This comment poses a question regarding the disadvantaged nature of the community and its relationship to County government.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

57-9

Comment Summary:

The comment expresses appreciation that the author's comments were included in the Draft EIR.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

57-10

Comment Summary:

This is a conclusionary statement of the letter.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

Nievez, Tom

From: Ronnie Shaw <auntronnieshaw@gmail.com>
Sent: Tuesday, April 23, 2019 1:40 PM
To: Nievez, Tom
Subject: Daggett Solar Power Facility SCH# 2018041007

Dear Mr. Nievez,

58–1 I live in Newberry Springs and have several concerns regarding the negative impacts that will result from not being able to mitigate significant effects that will exist from the proposed solar project. This letter is a follow up from my first letter emailed to you on April 15, 2019.

58-2 After reading the Draft Environmental Impact Report (DEIR): Executive Summary and Section 3.14 (Effects Found Not to Be Significant), relating to Sections 3.1 (Aesthetics and Visual Resources), 3.3 (Air Quality), 3.4 (Biological Resources, 3.9 (Water Quality) I have the following concerns:

58-3 1. Blowing sand, air quality: Population and housing will be affected east of the solar project. If the wind reverses direction, the residents west of the project will be affected also. The County of San Bernardino 2007 Development Code (amended 2015) 84.29.035 (c) 1. (A) states that the solar project needs to be sufficiently separated from existing communities and existing rural residential areas so as to avoid adverse effects. All the soil that is to be moved and the vegetation that is going to be removed will have adverse effects on the residents that live mainly east of the project. In Newberry Springs on Mountain View there is a solar plant that is burying residents east of this project. The mitigations have not worked. Dev. Code 8.A. requires minimal ground disturbance, this is clearly not what is going to happen.

58-4 Dev. Code c) 22, the blowing sand is not going to have a wind barrier that will be effective to stop the sand from blowing.

58–5 2. Aesthetic and Visual Resources: The Development Code (c) (1) (B) states that the project must be sufficiently small size, which this is not going to happen.
The visual impact of the project is to blend with the environment. This also is not going to happen. The giant mirrors will obstruct the view of the desert, big time. The picture that the county released is not accurate. The mirrors are going to be much taller. There is even supposed to be a fence around it.

58-6 3. Dev. Code (C) 9. states that facility will be sited so as to minimize impacts to the habitat of species, wildlife linkages. The project will block the natural linkage passage of animals that migrate from south to north. The vegetation that grows there will be permanently disturbed.

58-7 4. We are already living in a disadvantaged community and there are many retired residents that can't pick up and move, living on fixed incomes. This solar project will cause property values to go down, causing many

58-8 hardships. Also, increase blowing sand will cause health problems.

58-9 All these concerns have a significant effect on the residents and land in the area of the project especially east of the project. It will bury residents. So The Draft EIR is not accurate and the picture that it represents is not even close to being accurate.

Thank you for your considerations from all those that live in Daggett and those of us that live east of the proposed solar project. I do agree with the concerns from Fred Stearn, Bob Berkman, Paul Deel, Vickie Paulsen, Virginia Padilla and any others from Newberry Springs.

58-9 *Cont'd*

Veronica Shaw
P.O. Box 280
Newberry Springs, CA 92365
760-265-0333

58 VERONICA SHAW

58-1

Comment Summary:

This comment provides an introductory discussion and concerns about the potential impacts and mitigation measures.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

58-2

Comment Summary:

This comment is introductory.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

58-3

Comment Summary:

This comment states that the project would create air quality impacts to residents living near the project.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Please refer to Master Response 1 for a complete response regarding this topic.

58-4

Comment Summary:

The comment states that mitigation measures for other projects have not been effective at mitigating air quality impacts. The comment raises specific concerns about the project's compliance with provisions in the San Bernardino County Development Code regarding adverse impacts to residential uses and ground disturbance. The comment discusses the lack of a wind barrier mitigation measure.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 for a complete response regarding this topic.

58-5

Comment Summary:

This comment discusses visual resources and aesthetics. The comment disputes the claim that the project would blend effectively with the environment and claims that the visual simulations do not accurately represent the proposed project.

Response:

The visual simulations in the EIR include three-dimensional (3-D) visual simulations from each KOP that were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Using the photographs acquired at KOP 1 through KOP 6, a 3-D physical massing model was created that incorporated the PV scale model, placed in array configurations as shown in the site plan provided in **Exhibit 2.0-2, Project Site.** Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade. Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis.

Please refer to Master Response 6 regarding glint and glare associated with the project.

58-6

Comment Summary:

This comment states that the project would have an impact on north to south migratory animals by blocking a natural migration corridor.

Response:

As stated under Impact 3.4-4 of the EIR, due to the intervening highways, roadways, and railroad, the active and historic cultivation of 54 percent of the project area, and the very small percentage of the site that qualifies as marginally suitable habitat, the project would not result in significant impacts related to the movements of native resident wildlife species, nor would it result in significant impacts to potential regional or local migratory wildlife corridors/linkages, nor would it impede the use of native wildlife nursery sites. This comment does not provide specific evidence to support the claim that the EIR is not supported by factual substantiation. Refer to Letter 2A for biological comments and recommendations from the CDFW. The USFWS did not provide a letter so a response cannot be provided to address USFWS policies and recommendations.

58-7

Comment Summary:

This comment states that Newberry Springs is economically disadvantaged.

Response:

Environmental justice is not a required part of an EIR analysis pursuant to CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment." (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)). Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

58-8

Comment Summary:

This comment states that air quality impacts from the projects would affect the health of the community.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Response 58-3 above regarding air quality impacts and mitigation measures. Please refer to Master Response 1 regarding air quality impacts and mitigation measures. Please refer to Master Response 3 regarding a Health Risk Assessment for the project.

58-9

Comment Summary:

This comment raises concerns with the accuracy and adequacy of the Draft EIR and alludes to concerns about air quality impacts.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Response 58-3 above regarding air quality impacts and mitigation measures. Refer to Master Response 1 regarding air quality impacts and mitigation measures.

April 29th, 2019

County of San Bernardino
Land Use Services Department
385 North Arrowhead Ave. First Floor
San Bernardino, CA 92415
Attn: Tom Nievez, Contract Planner

Via email : tom.nievez@lus.sbcounty.gov

Re: Proposed Daggett Solar Power Facility (the project)

Mr. Nievez,

59-1 As a long term resident and property owner of subject County, more specifically, within the area of influence that the county refers to as "Newberry Springs" and. Having reviewed the Ordinance amending the San Bernardino Development Code chapters 84.29 et al and.
Having reviewed the Draft Environmental Impact Report (DEIR) as much as humanly possible in the very short review period that your department has allowed I find the following facts:

59-2 1] The DEIR is drafted and presented in a manner that is grossly confusing to the average resident in an effort to discourage participation and response. Therefore, I am addressing my response by calling your attention to the Ordinance Amending section 84.29 of the County Development Code which pertains to Renewable Energy Generation Facilities. Since this Code Represents the legal operation of law; all residents in this community expect it to be followed to the letter, without modification and/or creative manipulation.

59-3 2] In reading the DEIR it seems very apparent to many of the residents in this community that the consultant hired by you is neither familiar with or schooled in

59-3 *Cont'd*

the parameters involved in this proposed project. One good example is that the Consultants have declared the Mojave River as insignificant with respect to the generation of airborne particulate matter. Where in fact the Mojave River bed hasn't seen surface water in many years and it is actually a gross source of PM 2.5 in and around the communities referenced by the DEIR.

59-4

3] Section 1(c) "The County desires to guide new commercial solar energy generation facilities to areas that can accommodate such facilities with fewer human and environmental resource conflicts." This proposed project will impact humans and environmental resources to the max. It appears very disingenuous for you to name this project for the community of "Daggett" wherein they will not be the recipients of the negative results; but rather, the community of Newberry Springs is down wind from the project and will receive many damaging affects of the proposed earth movement scheme. In fact, it is easy to determine the damages to be caused by just looking at the "soitec" project and the houses buried in the sand which was generated by the Mojave River wash in past years. Once the desert crust is scraped off the projects 3,400 acre site the particulate matter will go airborne along with a massive amount of blow sand. The 2.5 Particulate Matter causes terminal illness similar to asbestos and the blow sand will bury Newberry Springs within a few short years.

59-5

4] Section 84.29.035 specifies Required Findings for Approval for any commercial solar energy facility within the County.
This project violates any and all of the criteria specified by the Ordinance including the specification that any such project must be developed "outside of water agency jurisdiction" and must "avoid or minimize impacts to the habitat of special status species". We realize that the consultant thinks that watering the site 3 times per day will mitigate the dust and blow sand problem; however, we know for a fact that if the contractor kept water flowing on the project during

59-5 *Cont'd* the entire construction phase that the damages would not be mitigated; we have an expert on this fact ready to testify under oath before a Judge.

59-6 5] Now since you are only considering properties within 1,000 feet of the project boundaries it is going to be difficult for you to determine the full scope of damages, because, the intrusion of blow sand and particulate matter will in fact have a negative impact for more that 20 miles down wind.

59-7 6] The county has experience with these issues from past behavior, so, for warned is for armed.

Sincerely,

Robert Shaw
POB 280
36042 Newberry Road
Newberry Springs, CA 92365

robert_shaw19@icloud.com

760 265 0332

59 ROBERT SHAW

59-1

Comment Summary:

This comment provides an introduction and states that the public comment period for the EIR was not long enough.

Response:

The commenter does not provide a reason, other than length of the document, to warrant extension of the review period. Pursuant to CEQA Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of CEQA. Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

59-2

Comment Summary:

This comment raises concerns about the presentation of the EIR and asserts that the EIR was intentionally written to discourage public participation. The comment references an ordinance amendment to Section 84.29 of the San Bernardino County Development Code, and states that the community expects that the ordinance will be followed exactly.

Response:

Please refer to Response 13-3 above regarding Chapter 84.29 Renewable Energy Generation Facilities.

59-3

Comment Summary:

This comment states that the authors of the EIR are not familiar with some of the parameters in the proposed project. The comment states that the conclusion that the Mojave River is an insignificant source of airborne particulate matter is incorrect, and that the Mojave River bed is a significant source of $PM_{2.5}$ in the area.

Response:

Please see Master Response 8 regarding impacts related to windblown materials. Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Response 58-3 above regarding air quality impacts and mitigation measures. Please also refer to Master Response 1 for a complete response regarding this topic.

59-4

Comment Summary:

This comment cites a section of the County Development Code directing commercial solar facilities to areas that will create few conflicts. The comment asserts that the project will have significant effects on the community and environmental resources. The comment claims that project is not appropriately named because most of the impacts will be felt by residents of Newberry Springs, instead of Daggett. The comment highlights negative impacts caused by the "Soitec" project, and raises concerns about earth movement, air quality, blowing dust, and associated public health issues.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 for a complete response regarding air quality and Master Response 8 regarding windblown materials.

59-5

Comment Summary:

This comment references Section 84.29.035 of the County Development Code and claims that the project does not meet the required findings. Specifically, the comment states that the project violates criteria that the "project must be developed outside a water agency jurisdiction" and "avoid … impacts to habitat of special status species." The comment states that the air quality and dust blowing mitigation measures (watering) are not sufficient.

Response:

Please refer to Response 13-3 above regarding County Development Code Chapter 84.29 Renewable Energy Generation Facilities. Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 for a complete response regarding air quality and Master Response 8 regarding windblown materials.

59-6

Comment Summary:

This comment states that properties outside of a 1,000-foot distance to the site will be impacted and need to be considered. The comment asserts that blowing sand and particulate matter will have effects more than 20 miles away from the project site.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 for a complete response on air quality impacts and mitigation measures. Additionally, a Health Risk Assessment (HRA) was performed

as part of the EIR; see Master Response 3. Please also see Master Response 8 for a discussion of windblown materials.

59-7

Comment Summary:

This comment implies that San Bernardino County is experienced with the impacts discussed in the letter (air quality, blowing dust, biological resources).

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

Ted Stimpfel
P.O. Box 11
Newberry Springs, CA 92365
newberrysprings@mail.com

April 29, 2019

County of San Bernardino
Land Use Services Department
Attn: Tom Nievez, Contract Planner
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415

Sent via e-mail:
Tom.Nievez@lus.sbcounty.gov

Re: Comments for inclusion into the Daggett Solar Power's EIR - P201700679.

Dear Mr. Nievez,

As you know, Environmental Impact Reports (EIR) shall include identification of all significant effects, alternatives, and potential mitigation measures (PRC § 21000-21004).

The submitted Draft EIR (DEIR) for the Daggett Solar Project ("Project") appears to have taken a very liberal interpretation of what is defined as not 'significant.' Merriam-Webster defines 'significant' as *"having or likely to have influence or effect."*

60-1 The provided definition of 'significant' solely requires an *influence or effect,* it does not require a level of influence nor effect, or whether-or-not the matter is technically mitigable.

I wish to challenge the DEIR's apparent misinterpretation and application of the term 'significant.' As used throughout the DEIR, it appears interpreted in numerous places to not consider a matter as having a high enough 'significance' to warrant a proper review and assessment.

My challenge is to all parts of the DEIR where this challenge is possible.

Furthermore, the public's response time to the DEIR is inadequate as the preparation of the draft took many, many months to prepare. The thousands of pages contained in the Draft and its massive Addendum is, for the time allotted, intentionally overwhelming for the public to review and respond to. Therefore, I am making a

60-2 request that a reasonable time extension be given for public input.

Having a slow reading disability, I have not been allotted adequate time to fully review the DEIR, however, I do wish to address some deficiencies that I have identified:

Concern #1. Missing Critical Air Quality Baseline and Analysis Data.

60-3 The Draft EIR has failed to include a basic minimum two-year (or more) baseline of site-specific air quality data from EPA approved dust and wind speed monitors for the analyzation of the safety of the proposed Project being sited in a recognized major aeolian Sand Transport Path.

60-4 Furthermore, the Draft EIR lacks critical environmental analysis of the health and safety consideration of fugitive dust emissions. This data is not only missing for the study of dust during the proposed construction but also for the impact of dust during the project's life-cycle, decommissioning, and years thereafter.

60-5 There is a high-risk factor of siting a utility-scale photovoltaic facility within a major Sand Transport Path. This danger is multiplied within a circle of communities (Barstow, Daggett, Nebo, Newberry Springs, and Yermo). Therefore, it is essential for public health that scientific fugitive sand and dust data be collected and properly analyzed prior to any CEQA impact report decision.

As mapped (see: http://newberryspringsinfo.com/Alliance/Soil-Map.pdf), the Project's proposed siting is upon areas of soil that have a high hazard of blowing soil and dust.

60-6 The DEIR fails to provide any material study of this highly significant matter and the DEIR is therefore deficient and should not be considered as submitted.

Concern #2. Batteries & Fire.

Public safety to neighboring communities should be paramount in the siting selection of any utility-scale renewable energy project.

60-7 A major concern is the massive Lithium storage batteries being proposed. A major fire and explosion at an Arizona renewable energy battery site in April 2019, seriously injured a number of first responders as the batteries released toxic gases.

Lithium-ion batteries can produce over a hundred dangerous gases when overheated, according to a study from the Institute of NBC Defence and Tsinghua University in China.

60-8 The proposed siting for the unmanned batteries of the Project is in an area where strong desert winds blow laterally for many miles. Any released toxic gases from an uncontrolled fire or explosion can be upon nearby sleeping residents within minutes.

60-9 Details on the specific storage batteries such as the structure design, layout, chemical compositions involved, locations and containment for fires and gases are vague and missing in the Draft EIR.

Fires have resulted in large renewable energy battery storage structures as similar to those vaguely described. The Project forecasts up to 16-acres of batteries. Earlier fires, such as one in Hawaii, sent toxic gases and hazardous smoke drifting along the land surface for many hours before the fire was contained.

60-10 The Draft EIR fails to address the serious impact of highly toxic gases being blown from the proposed Project upon neighboring downwind communities. The Draft EIR lacks a warning and evacuation plan for the adjacent communities. If a fire or explosion occurs at an unmanned battery site where toxic flumes are then released, how are sleeping communities notified and evacuated within the several minutes that the toxic gases will reach them in the quick-moving winds?

The DEIR fails to address highly significant issues of public safety.

Concern #3. Missing Alternative Sites.

The DEIR fails to meet CEQA requirements to properly consider alternative mitigating sites for placement of the project.

60-11 No projects which would cause significant environmental effects should be approved as proposed if there are feasible alternatives or mitigation measures that would lessen those effects (PRC § 21000-21004). The Draft EIR fails to adequately consider alternative sites. The hazard of placing such a Project surrounded by communities is illustrated in the previous concern.

State law demands that alternative sites for the Project must be fully studied and considered to mitigate the recognized unmitigable damages that the proposed site poses.

60-12 The currently proposed site will have a significant negative impact upon the local wildlife, local economics, scenic viewsheds, County's Scenic Route 66, groundwater, surrounding property values and residential character and development, and the residential health from increased levels of PM10 silica dust, among many other significant negative impacts.

60-13 The Draft EIR fails to provide any meaningful comparative analysis despite approximately 388,000-acres of land having been set aside for solar development by the Desert Renewable Energy Conservation Plan.

As a consequence, the Draft EIR is deficient in abiding by the established protocol of analysis and public disclosure of viable alternative sites available to mitigate the immediate foreseeable adverse impacts from the proposed Daggett project site.

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Concern #4. Damage To Community Character.

Since the enactment of the California Environmental Quality Act in 1970, the scope of the Act has been expanded. In recent years, the County of San Bernardino Superior Court has opined in a ruling that CEQA covers the environmental impact upon the character of a community.

60-14 While the matter before the court dealt with a modern dollar store disrupting the visual and business environment of a small community's business theme and economic structure, the principle expressed by the court appears exceptionally well suited, relevant and applicable to the Project's impact upon the open viewscape and economic tourist-oriented lifeline of the surrounding communities.

60-15 The Mojave Valley (Silver Valley) has a rich and vibrant Western history that attracts visitors from around the world looking for the wide-open frontier spaces so widely familiar in Hollywood's Western folklore. Europe for instance, has mountains, forests, flatlands, and seas like America, Europe does not have deserts. Our deserts, heat, habitats, and vast openness attracts European tourism. The proposed Project site includes the historical area where native Indian trails, the early Spanish Trail, the Santa Fe Trail, the Mojave Trail, the Morman Salt Lake Trail, railways and others all merged in the Silver Valley and funneled through Daggett.

60-16 Contrary to the statements given in the DEIR, the Project's photovoltaic panels will obstruct and negatively impact the viewscape from both Historic Route 66 and Interstate-40. Historic Route 66 is a county Scenic Route and is expected to be designated a National Historic Trail by Congress in late 2019.

Tourism is exceptionally important in Barstow and the outlying communities where visitors lodge, visit restaurants and convenience stores, visit gas stations and purchase supplies.

60-17 Tourists elect to spend their money visiting places of natural wonder and historical and cultural significance and excitement. They do not choose to visit square miles of solar panels. The proposed Project site will have a significant negative impact on local tourism and will negatively impact the historical and economic character of the entire Mojave Valley.

60-18 The Draft EIR is deficient by failing to properly study and address the devastating impact of the proposed project upon the community character of the Mojave Valley communities.

Concern #5. Decommissioning - Panels and Batteries.

60-19 The decommissioning of solar panels and batteries have not been adequately addressed in the Draft EIR. The makeup and the quantity of the elements of the

60-19 *Cont'd*

panels and the batteries have not been presented. This is critical because the many square miles of solar panels represent a massive amount of toxic elements that if not properly removed under HAZMAT oversight can leave elements that will leach into the soil and groundwater, or be exposed to blowing wind.

As the solar panels and batteries represent toxic elements that must be later disposed of by trucking to toxic landfills, the Draft EIR does not adequately address the massive costs of an environmentally acceptable decommissioning clean-up.

60-20

The Draft EIR further does not identify a bond amount (in future inflated dollars) that would guarantee proper environmental disposal of all waste.

This is important as the County must hold an acceptable environmental decommissioning bond that will fully cover the many square-miles of HAZMAT clean-up costs.

The County has failed in a previous obligation to county residents to hold renewable energy developers accountable for maintaining a proper decommission bond.

60-21

As part of the EIR, the environmental decommissioning clean-up and restoration should be fully studied and planned with all proforma costs forecasted in the future cost of living dollars.

The Draft EIR is highly deficient in the element of decommissioning.

Concern #6. Decommissioning - Land Restoration.

60-22

Decommissioning - Grading. The project will require many square miles of level grading that will relocate millions of tons of soil. This will significantly alter and scar the landscape and historical drainage. The Draft EIR fails to adequately define a plan upon decommissioning to return the terrain to its previous natural state and prevent terrain scarring. The Draft EIR further fails to compute and define a proper plan and bond that will adequately ensure restoration of terrain and mitigate dust blow for the years after the project's abandonment.

Concern #7. Decommissioning - Soil Stabilization.

60-23

Additionally to Concern #6 (above), the Draft EIR fails to present a detailed plan and associated bonding for the many years of future costs, upon the project's decommissioning and abandonment, for the many square miles of soil stabilization that will be necessary due to the Project's soil disturbance in a Sand Transport Path.. Of special concern is the high health hazard from migrating PM10 fugitive silica dust.

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Concern #8. Heat Island Effect.

The Draft EIR fails to address the Heat Island Effect of the many square miles of photovoltaic panels will have a significant negative impact upon the immediate and nearby ecosystems and inhabitants.

60-24 Recent university findings have substantiated that large photovoltaic facilities can increase local temperatures from approximately 5 to 7.5-degrees Fahrenheit. With an average Daggett high temperature in July & August of 104 and 103-degrees respectively, the added temperature from the Project can create havoc upon the immediate environment and negatively impact the natural habitat.

As the proposed site is centered in a recognized habitat corridor, the DEIR is faulty in not performing a thorough study of the Heat Island Effect impacts.

Concern #9. Medical Lawsuits - Bonding & Indemnification.

The environmental health ramifications of constructing the Project in a Sand Transport Path is enormous. The exacerbation of Pulmonary health issues will be enormous. Residents injured by the improper placement of the Project in a known
60-25 Sand Transport Path will be entitled to the recovery of their damages.

As the damages can run into billions of dollars and is significant to the viability of the Project and maintenance, the DEIR is faulty for not addressing the bonding and indemnification necessary to adequately protect the County of San Bernardino as a party in permitting the Project.

Concern #10. Letters of Fred Stearn & Robert Berkman.

Mr. Fred Stearn and Mr. Robert Berkman, both located in Newberry Springs, California, have submitted many letters addressed to you, Mr. Nievez.

I wish that each of their letters to you regarding the Project be fully incorporated to this letter as though each is fully affixed and set forth herein, and I am requesting to
60-26 have all points, questions, observations, challenges, comparisons, conflicting law, regulations and policies, and statements contained within their letters to be fully addressed and responded to in the EIR. If <u>each</u> item in <u>each</u> of their said letters is being fully responded to directly in the EIR from their letters, my Concern #10 can be waived to avoid repetitiveness. My concern and intent are to have the many statements contained in the Stearn and Berkman letters that are solely stated as observations without a statement of associated DEIR deficiency, be fully addressed in the EIR.

Respectfully submitted,

TS

Ted Stimpfel

60 TED STIMPFEL

60-1

Comment Summary:

This comment raises concerns about the thresholds of significance used in the EIR, and states that the use of the word "significant" in the EIR is not used correctly. The comment cites the Miriam Webster definition of "significant" and challenges the use of the term significant.

Response:

The comment does not offer any evidence to support the claim that the levels of significance used in the EIR are incorrect. CEQA requires a Lead Agency to determine the significance of all environmental impacts (California Public Resources Code [PRC] Section 21082.2; State CEQA Guidelines Section 15064). A threshold of significance for a given environmental impact defines the level of effect above which the Lead Agency will consider impacts to be significant, and below which it will consider impacts to be less than significant. Thresholds of significance may be defined either as quantitative or qualitative standards, or sets of criteria, whichever is most applicable to each specific type of environmental impact. Lead Agencies have discretion to formulate their own significance thresholds.

Significance thresholds are identified in each resource chapter of the EIR and findings of significance are based on whether or not the project would be expected to exceed those established thresholds.

60-2

Comment Summary:

This comment states that the public review period was inadequate for proper review, and claims that the EIR was deliberately written to be inaccessible to the public. The comment requests additional time for public review and input.

Response:

The commenter does not provide a reason, other than length of the document, to warrant extension of the review period. Pursuant to CEQA Section 15105 – Public Review Period for a Draft EIR, "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." The public comment period was in compliance with Section 15105 of CEQA.

60-3

Comment Summary:

The comment states that the EIR has not included the community's baseline air quality data from government-approved air quality sensors for analysis of the project within the site's existing context. The comment states that the project is "sited in a major aeolian sand transport path."

Response:

An adequate baseline for air quality impacts is provided in the EIR. Please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis. Additionally, refer to Master Response 8 for more information on the impacts from wind-transported materials.

60-4

Comment Summary:

This comment states that the EIR does not properly analyze the potential health effects of air quality and fugitive dust impacts. The commenter asserts that the EIR did not properly analyze the impacts over the life cycle of the project.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Response 58-3 above regarding air quality impacts and mitigation measures. Refer to Master Response 1 for a complete response on air quality impacts and mitigation measures. Additionally, an HRA was performed as part of the EIR; see Master Response 3.

60-5

Comment Summary:

This comment asserts that it is necessary to collect local air quality data prior to approval of CEQA and raises concerns about the siting of the project within a sand transportation path and on soil with high potential to blow dust.

Response:

Air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Please refer to Master Response 1 for a complete response regarding this topic. Additionally, an adequate baseline for air quality impacts is provided in the EIR. Please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

60-6

Comment Summary:

This comment asserts that the EIR is deficient due to the omission of historical air quality data for the project's immediate surroundings.

Response:

An adequate baseline for air quality impacts is provided in the EIR. Please refer to Master Response 4 for more information on air quality monitoring stations and air quality analysis.

60-7

Comment Summary:

This comment states that the EIR should consider safety impacts of the project and potential for hazardous gaseous discharge from lithium ion batteries in the event of a fire or explosion. The comment cites an instance in Arizona where hazardous gases were released from a battery site, and cites an academic study detailing the hazardous gases that may potentially be emitted from overheated batteries.

Response:

Analyses in the EIR properly evaluated the potential of fire and explosions as a result of accidents revolving the battery storage system. As stated in Impact 3.8-7 beginning on page 3.8-27 of the EIR, the battery would be subject to compliance with existing federal, state, and local regulations for health and safety, including the 2016 California Fire Code. The battery storage would contain a safety system that would include a fire detection and suppression control system that would be triggered automatically when the system senses imminent fire danger. A fire suppression control system would be provided within each on-site battery enclosure. Please refer to Response 6-10 regarding battery storage and potential impacts. Refer to Responses to Letter 6 regarding potential impacts to the Newberry Springs Fire Department.

60-8

Comment Summary:

This comment states that strong desert winds could transport toxic gases released during fire or explosion of the battery storage system to nearby residents in minutes.

Response:

Please refer to Response 6-10 regarding safety features of the battery storage system.

60-9

Comment Summary:

This comment states that details on the design, layout, chemical composition, location, and containment is vague or missing in the EIR.

Response:

Please refer to Response 6-10 regarding safety features of the battery storage system.

60-10

Comment Summary:

This comment provides an example of a battery fire in Hawaii. The commenter states that the EIR did not evaluate the impacts of strong desert winds transporting toxic gases released during fire or explosion of the battery storage system to nearby residents.

Response:

Refer to Response 6-10 regarding safety features of the battery storage system. No further response is required.

60-11

Comment Summary:

This comment states that the project failed to adequately analyze alternate sites. The commenter states that state law demands that alternative sites must be fully studied and considered to mitigate the recognized unmitigable damages.

Response:

An EIR does not need to consider every conceivable alternative project, but it does have to consider a range of potentially feasible alternatives that will facilitate informed decision-making and public participation. As stated in Section 4.0, there are three potential project alternatives: (1) No Project Alternative; (2) Reduced Footprint Alternative; and (3) Kramer Junction Alternative. Implementation of Alternative 2 would result in reduced impacts on aesthetics, agricultural resources, air quality, biological resources, cultural, tribal cultural, and paleontological resources, geology and soils, greenhouse gases, hydrology and water quality, hazards and hazardous materials, land use, noise, transportation and traffic, and utilities when compared to the proposed project. Alternative 2 attains some project objectives. Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative that avoids or substantially lessens the significant impacts of the proposed project.

60-12

Comment Summary:

This comment states the project would have significant impacts on wildlife, local economics, scenic viewsheds, Route 66, groundwater, surrounding property values, and community character. The commenter states that the project would also have significant impacts on public health by the release of PM_{10}.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

All biological impacts are reduced to less than significant with implementation of mitigation measures **BIO-1** through **BIO-7** (see Section 3.4, Biological Resources). Please refer to Response 14-1 regarding impacts to Historic Route 66. Refer to Master Response 7 for more information on the methods used to perform the visual analysis in the EIR. The proposed project would not

impact community character because the proposed project is allowed under existing County land use and zoning regulations and is consistent with the County's intentions for future development of the subject lands. Further, the project would not divide an existing community (see Impact 3.10-1 of the EIR). Please refer to Master Response 1 regarding air quality impacts and mitigation measures.

60-13

Comment Summary:

This comment states that the EIR fails to provide meaningful comparative analysis.

Response:

Please refer to Response 60-11 regarding alternatives for the proposed project.

60-14

Comment Summary:

This comment states that CEQA has expanded to include impacts on community character.

Response:

"Community character" is not a CEQA topic per se; rather, "visual character" is a threshold evaluated in Section 3.1, Aesthetics and Visual Resources. Refer to Master Response 7 for more information on the methods used to perform the visual analysis in the EIR.

60-15

Comment Summary:

This comment states that the region has a rich history that attracts visitors.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

60-16

Comment Summary:

This comment states that the project would have negative impacts on the viewscape from I-40 and Historic Route 66.

Response:

As stated in Impact 3.1-1, the project would result in a moderately low change to views from I-40. From I-40 (KOP 2, **Exhibit 3.1-6**), the solar arrays would be visible in the foreground (on the west)

and middle ground views, with the solar panels and related fencing becoming less discernible at a distance and blending into the agricultural land use pattern. Few encroachments exist that otherwise shield the project from view. The new gen-tie structures would be barely discernible in the far middle ground and would blend in with the existing lattice structures in the existing transmission corridor farther north. The landscape conversion at the solar site would be less apparent due to the setback from the highway.

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis and for information regarding Supplemental Visual Simulation KOP 2, which shows views of the site from Hidden Springs Road, south of I-40. The visual simulations in the EIR include three-dimensional (3-D) visual simulations from each KOP that were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Using the photographs acquired at KOP 1 through KOP 6, a 3-D physical massing model was created that incorporated the PV scale model, placed in array configurations as shown in the site plan provided in **Exhibit 2.0-2, Project Site.** Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade.

Furthermore, the project would not conflict with scenic route designation for Route 66. Refer to Response 14-1 regarding impacts to Historic Route 66. Refer to Master Response 7 for more information on the methods used to perform the visual analysis in the EIR.

60-17

Comment Summary:

This comment states that the project would impact local tourism.

Response:

CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

60-18

Comment Summary:

This comment states that the findings in the EIR fails to address the impacts to community character as a result of project implementation.

Response:

"Community character" is not a CEQA topic per se; rather, "visual character" is a threshold evaluated in Section 3.1, Aesthetics and Visual Resources. Refer to Master Response 7 for more information on the methods used to perform the visual analysis in the EIR. Further, the project would not divide an existing community (see Impact 3.10-1 of the EIR).

60-19

Comment Summary:

This comment states that details on decommissioning is not adequately provided in the EIR. The commenter states that the EIR does not adequately address the massive costs of decommissioning.

Response:

Decommissioning is described in Section 2.0, Project Description and considered in all resource area evaluations in the EIR. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

60-20

Comment Summary:

This comment states that the EIR does not contain information regarding a bond for future decommissioning costs.

Response:

Specifics on County-required bonds are not included in the EIR because economic issues are not considered under CEQA. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

60-21

Comment Summary:

This comment states that the EIR is highly deficient when it comes to discussing decommissioning.

Response:

Decommissioning is described in Section 2.0, Project Description and considered in all resource area evaluations in the EIR. CEQA requires an analysis of physical impacts to the environment; it does not require analysis of social and economic impacts. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

60-22

Comment Summary:

This comment states that the EIR fails to adequately define a plan to return the terrain to its previous state after decommissioning. The commenter states that the plan should include restoration and mitigation for blowing dust.

Response:

As stated in mitigation measure **BIO-7**, prior to commencement of the decommissioning phase, the project applicant shall prepare a revegetation plan as part of the Decommissioning Plan to identify performance standards necessary for revegetation of the site with native plants. The Decommissioning Plan shall specify success criteria, including, but not limited to, site preparation methods, installation specifications, maintenance requirements, and monitoring/report measures to ensure certain botanical thresholds are met such as adequate cover, density, and species richness. Standards of success shall include at least a 50 percent revegetation success rate compared to baseline conditions and shall include annual monitoring for 2 years. If 50 percent revegetation has not been achieved within 2 years due to lack of water or other environmental factors, the applicant shall work with the County to identify and implement an alternate solution to achieve the identified success rate or successful stabalization.

Therefore, specific seed mix of the revegetation plan has yet to be approved. Furthermore, success rate criteria shall include annual monitoring and a 50 percent success rate which would ensure the site is properly revegetated after decommissioning. It would be in the project applicant's best interest to choose the correct seed mix and watering plan. No further response is required.

60-23

Comment Summary:

This comment states that the EIR fails to provide a detailed plan and bonding for soil stabilization after decommissioning.

Response:

Specifics on County required bonds are not included in the EIR because economic issues are not considered under CEQA. Furthermore, soil stabilization is included as a requirement of the Decommissioning Plan. Decommissioning is described in Section 2.0, Project Description and considered in all resource area evaluations in the EIR.

60-24

Comment Summary:

This comment states that the heat island analysis in the EIR is faulty.

Response:

Please refer to Response 26-44 regarding the heat island effect.

60-25

Comment Summary:

This comment states that the project should be properly bonded to pay for lawsuits regarding health impacts caused by blowing sands as result of the project.

Response:

Specifics on County-required bonds are not included in the EIR because economic issues are not considered under CEQA; however, bonds will be required by the County and compliance with mitigation measures will be monitored by the County. Under CEQA, "[a]n economic or social change by itself shall not be considered a significant effect on the environment" (CEQA Guidelines, Sections 15131 and 15382). Effects analyzed under CEQA must be related to a physical change (CEQA Guidelines, Section 15358(b)).

60-26

Comment Summary:

This comment states that the commenter would like to have the letters from Fred Stern and Robert Berkman fully incorporated into this letter. The commenter states that this comment can be waived if each letter is fully addressed.

Response:

Frank Stern has not submitted a letter on the Draft EIR. Robert Berkman has submitted Letters 13-22 on behalf of CEQA Now. All comments have been responded to as part of the Final EIR.

To Tom Nievez,

RE; Daggett Solar Power Facility SCH# 2018041007
Minneola Solar Project (S20180004) AKA Newberry Spring Project

61-1 I'm a new homeowner in Newberry Springs. I just became aware of this Solar Project. I had no idea that it was going to be just around the corner from my home.

61-2 I dealt with sand storms during the fall. I have been told that if these solar plants were to be built it would be worse than just the ones I have experienced. When it blows it shut downs Minneola Road going north towards the 15 freeway. If they were to be built it would impact all of Minneola Road from National Trials Highway to the 15 freeway.

61-3 My home will covered in sand on a daily basis. The panels will be directly in our view from my back yard. Just about 500 yards away. I encourage you to come and check it out our lovely view now before it is destroyed by these 20 feet tall panels.

61-4 My understanding is that when and if they approve this project it will damage the natural habitats of several animals and plants. I enjoy listening to all species of birds

61-5 that visit and pass my home. The sand winds will over take my home. I have allergies and it will hard for me to enjoy my daily walks with my dog during the sunrises and sunsets.

61-6 I saw pictures that were posted by the solar companies on the Minneola project and they are not a pretty site. Solar plants will be nothing but an eyesore and they are highly efficient to killing birds thinking it is a lake or water source. Also, they told me they are going to be 20 feet tall.

I think the Policy 4.10 should be looked at again.

61-7 RE Policy 4.10: Prohibit utility-oriented RE project development on sites that would create adverse impacts on the quality of life or economic development opportunities in existing unincorporated communities.

RE 4.10.1: Prohibit development of utility-oriented RE projects in the Rural Living

land use districts throughout the County.

RE 4.10.2: Prohibit development of utility-oriented RE projects within the boundaries of existing community plans, which at the time of adoption of this Element are the Bloomington, Muscoy, Bear Valley, Crest Forest, Hilltop, Lake Arrowhead, Lytle Creek, Oak Glen, Homestead Valley, Joshua Tree, Lucerne Valley, Morongo Valley, Oak Hills and Phelan/Pinon Hills Community Plans.

61-7

Cont'd

RE 4.10.3: Establish exclusion areas in the Development Code regulations for renewable energy development, beginning with the prohibitions in Policies 4.10.1 and 4.10.2 and provide for additional exclusion areas, such as new community plan areas, to be designated by amendment to the Development Code.

According to the California Noise Control Act of 1973, find that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economical damage. The act also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas. It is the policy of the state to provide an environmental for all Californians that is a free from noise that jeopardizes their health and welfare.

61-8

I'm concerned about our newest family with the newborn.

I also read about Valley Fever. It's an illness caused by a fungus found in the soil and dirt of some areas of the California. The fungi's spores can be stirred into the air by anything that disrupts the soil such as farming, construction, and wind. The fungi can then be breathed into the lungs and cause valley fever also known as acute coccidioidomycosis.

61-9

I believe I'm one of many homeowners on my street that are against this project being built near us. It will effect all us greatly, not only the dust, noise, congestion of traffic but our lovely desert will never be the same.

61-10

Thank you

Stephen A Stokes

61 STEPHEN STOKES

61-1

Comment Summary:

This comment provides an introductory discussion and description of the project as proposed.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response.

61-2

Comment Summary:

This comment states that homeowners would be covered in sand on a daily basis.

Response:

As described in Section 3.3, Air Quality of the EIR, mitigation measures **AIR-1** through **AIR-3** would be implemented to reduce potential adverse effects related to fugitive dust and other air quality impacts during construction, operations, and decommissioning of the project. Additional standard measures to further reduce potential fugitive dust emissions would be implemented based upon public comments received on the EIR from the MDAQMD; however, no change to the EIR analysis, findings, or mitigation measures are required. Please refer to Master Response 1 for additional discussion of air quality impacts and mitigation measures. Please refer to Master Response 8 for a discussion of windblown materials.

61-3

Comment Summary:

This comment voices concerns regarding visual impacts as a result of project implementation. The commenter states that the project would be approximately 500 yards away from their backyard.

Response:

Please refer to Master Response 7 for more information on the methods used to perform the visual analysis. Section 2.2.1 of **Appendix B-1** of the EIR, and **Appendix A**, Figures A1 and A2 show typical solar array and tracker panel layouts, respectively. Typical layouts were shown because, as stated in Section 2.2.1, specific equipment for the proposed project would be determined prior to construction. Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade. This height is visible in relation to surrounding land uses as shown in the EIR Exhibit 3.1-10b KOP 5B.

61-4

Comment Summary:

This comment voices concerns over biological impacts to natural habitats of several native desert species.

Response:

Please refer to the discussion of impacts on candidate, sensitive, or special-status species in Impact 3.4-1 beginning on page 3.4-20 of the EIR and on riparian habitat or other special-status habitats in Impact 3.4-2 beginning on page 3.4-32 of the EIR. Impacts 3.4-1 and 3.4-2 are found to be less than significant with implementation of mitigation measures **BIO-1** through **BIO-7**.

61-5

Comment Summary:

This comment voices concerns over air quality and public health impacts of the project.

Response:

Contrary to the commenter's assertion, air quality impacts would be adequately mitigated with implementation of mitigation measures **AIR-1** through **AIR-3**. Refer to Response 61-2 above regarding air quality impacts and mitigation measures. Refer to Master Response 1 for a complete response regarding this topic. Additionally, refer to Master Response 3 for more information on the HRA performed for the project. No further response is required.

61-6

Comment Summary:

This comment pertains to issues regarding visual and biological impacts of the project.

Response:

Refer to Response 2A-12 regarding avian impacts due to the "lake effect." The comment does not provide evidence to refute the visual or biological analyses and findings in the EIR. Refer to Master Response 7 for more information on the methods used to perform the visual analysis. All analyses in the EIR are support by factual substantiation. No further response is required.

61-7

Comment Summary:

This comment cites text from RECE Policy 4.10, which discusses land use compatibilities for renewable energy projects.

Response:

Section 3 of Resolution No. 2019-17 of the Amendment of the Renewable Energy and Conservation Element of the General Plan, adopted by the Board of Supervisors on February 28, 2019, stipulates that "any application for development of a renewable energy generation project

that has been accepted as complete in compliance with California Government Code Section 65943 before the effective date of this Resolution shall be processed in compliance with the policies and regulations in effect at the time the application was accepted as complete." The application for the Daggett Solar Power Facility was deemed complete on March 22, 2018 and thus the pre-amendment policies and regulations apply to the project.

Regardless, the project is consistent with many of the policies contained in the RECE, including that it is located primarily on disturbed land, adjacent to existing utility infrastructure, near existing industrial development including an airport and utility-scale solar, and is not within an adopted Community Plan area. Tables 3.10-2 and 3.10-3 in the EIR summarize the project's consistency with these policies.

61-8

Comment Summary:

This comment pertains to noise impacts caused by the project.

Response:

As discussed in Impact 3.11-1 beginning on page 3.11-13 of the EIR, noise impacts would be reduced to a less than significant level with implementation of mitigation measures **NOI-1** and **NOI-2**.

61-9

Comment Summary:

This comment pertains to Valley Fever and the potential for public health impacts of soil disturbance.

Response:

Please refer to Master Response 2 regarding Valley Fever. Please refer to Master Response 1 for a complete response regarding air quality impacts and mitigation measures and Master Response 8 regarding windblown materials.

61-10

Comment Summary:

This is a conclusory comment that summarizes points discussed previously in the letter.

Response:

Comment noted for the record. The comment does not address the adequacy of the EIR or raise any specific environmental concerns which can be addressed in this response. The comment does not present information that materially affects the methods or findings of the EIR. No further response is required.

42817 Acaso Road
Newberry Springs, CA. 92365

April 29, 2019
County of San Bernardino, Land Use Services Department
Tom Nievez, Contract Planner
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415 Tom.Nievez@lus.sbcounty.gov
RE: Daggett Solar Power Facility, Draft EIR (SCH No. 2018041007)

Dear Mr. Nievez,

I'd like to take this opportunity to comment on the Daggett Solar Power Facility Draft EIR - specifically Section 3.1 - Aesthetics and Visual Resources.

62-1 Most of the DEIR Section 3.1 conclusions are based on photographs from so-called "key observation points" (KOPs) selected by the project applicant. The applicant has overlaid their own photographs with their own "simulated" (likely photoshopped) images of views they claim represent the actual views seen by motorists, residents and tourists of their proposed 20-foot tall solar panels. I've observed that many of the KOP views contained in the DEIR are extremely false and misleading. It is unclear whether this falsification has been intentionally done by the applicant or whether the falsification has been done accidentally by the applicant. In either case, the photo-falsification leads the applicant to claim (falsely) that building the project would not significantly impact either community aesthetics or visual resources.

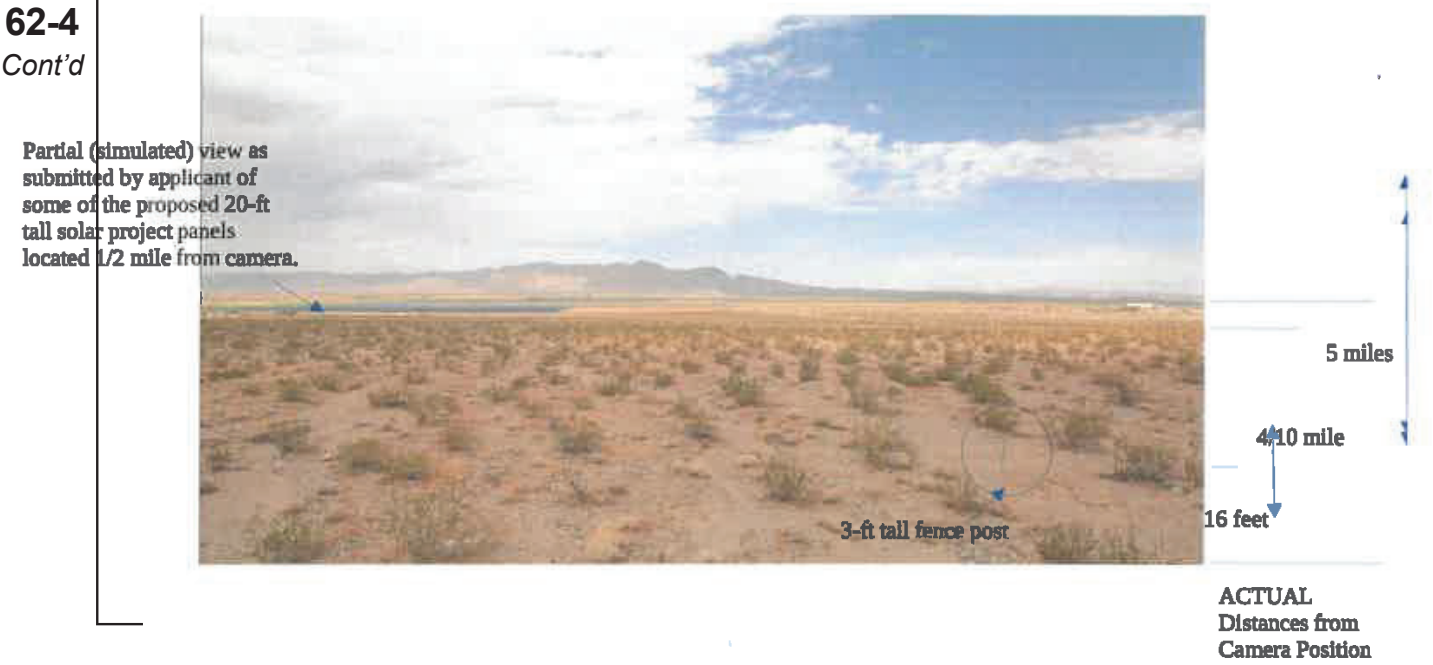
62-2 One glaring example of the applicant's photo-falsification is their KOP 2 picture (Exhibit 3.1-6b KOP 2 Visual Simulation). This DEIR photo supposedly shows a "simulated" view of the proposed solar panels from Interstate 40 (I-40) which is traveled by 14,400 motorists each day. In fact, as the DEIR admits, KOP 2 is actually a view not from I-40 but from the westbound "ONRAMP" to I-40. Based on this photo, the DEIR claims that "the project would result in a moderately low change to views from I-40". Two points put the lie to this DEIR claim.

62-3 Point 1. The "onramp" increases in elevation from the access roadway up to I-40 itself. The DEIR photo is from an onramp vantage point that is substantially lower than the actual view from I-40 itself. Look at the height of the 3-foot tall barb wire fence post (circled in blue). It's clear the camera vantage point is only a few feet higher than the top of the 3-foot tall fence post(s), and is not a view from I-40 itself. By choosing a lower vantage point than I-40 itself, distant objects such as the proposed solar panels, appear much smaller in the distance. Also, the wide-angle onramp "simulated" view in no way represents the actual view of the proposed project panels as seen from the I-40 roadway by passing motorists and tourists.

62-4 Point 2. The DEIR photo is taken with a wide-angle camera lens. Wide angle lens distort visual perspective and, as in Point 1 above, this perspective distortion makes foreground objects and distances look much larger while making background objects appear much smaller. This perspective distortion (and solar panel size distortion) is easily noticed by looking at the three actual distances from the camera position shown by the distance scale in the right-hand margin of the photograph. If the photo's distance scale was truly linear, then Rt. 66 (National Trails Highway), visible in the distance as a thin white line should be 80 feet away from the camera. In actuality, Rt. 66 is 4/10 of a mile (about 2200

feet) away (per Google Earth) from the camera. It's clear how distances are distorted by the wide-angle lens. Further, in the photo, the near edge of the Calico Mountains appears to be just beyond Rt. 66. In actual fact, the near edge of the Calico Mountain is over 4 1/2 miles beyond Rt. 66. The photographic distance and size distortions mean that the simulated solar panel sizes appear much smaller in the KOP 2 photograph compared to their appearance in actual reality. In fact, only about 10% of the proposed panels are even shown in this KOP 2 false simulation. The other 90% of the proposed solar panels have disappeared. Apparently they have shrunken down so much as to be completely invisible in this (Exhibit 3.1-6b) KOP 2 distorted-perspective photo simulation.

62-4
Cont'd



The DEIR conclusions are therefore almost completely invalid. This Exhibit 3.1 - 6b (KOP 2) DEIR photo and a number of other DEIR photo(s) use the same wide-angle distance and size minimization technique to give the false impression that the solar project's impact on the viewshed is almost negligible. This impression is a lie. The viewshed degradation is in fact very considerable and is unacceptable to tourists as well as to the surrounding community.

62-5

Additional examples of this same wide-angle **photo-lying** include:

Exhibit 3.1-5b KOP 1 (Visual Simulation)

Exhibit 3.1-7b KOP 3 (Visual Simulation)

Exhibit 3.1-8b KOP 4 (Visual Simulation)

Exhibit 3.1-11b KOP 6 (Visual Simulation)

62-6 In addition to Section 3.1 - 6b, many other Daggett Solar Power Project DEIR conclusions are demonstrably, substantially and irreparably false for the same reason, including:

1. **Scenic Vista - Impact 3.1-1 The project WOULD HAVE an adverse effect on a scenic vista. A substantial NEGATIVE impact WOULD occur.**

62-7 **2. Scenic Highway - Impact 3.1-2 The project WOULD substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. These impacts WOULD be SIGNIFICANT.**

62-8 **3. Visual Character - Impact 3.1-3 The project WOULD substantially degrade the existing visual character or quality of the site and its surroundings. These impacts WOULD be SIGNIFICANT.**

62-9 **4. Cumulative Impacts - Impact 3.3-5 The project WOULD result in cumulative, negative aesthetic impacts. These impacts WOULD be SIGNIFICANT.**

62-10 Irrespective of the many other significant negative impacts of the proposed project, the negative impacts of the proposed project on the Mojave Valley's aesthetics and visual resources are, in my opinion, significantly negative to warrant cancellation of the entire project.

Thank-you very much for this opportunity to comment on the DEIR.

Respectfully,

Jack Unger

62 JACK UNGER

62-1

Comment Summary:

The commenter states that conclusions in Section 3.1 of the EIR are based on photographs and photo simulations that are "extremely false and misleading."

Response:

This comment does not provide evidence to support the claim that photographs and photo simulations used in the visual analysis are inaccurate or misleading. Please refer to Master Response 7 for more information on the methods used to perform the visual analysis.

62-2

Comment Summary:

The commenter states that KOP 2 is falsified because the viewpoint is not on I-40, but the westbound on-ramp to I-40. The commenter then states that there are two points that support the claim that the viewpoint is falsified.

Response:

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis and for information regarding Supplemental Visual Simulation KOP 2, which shows views of the site from Hidden Springs Road, south of I-40. The visual simulations in the EIR include three-dimensional (3-D) visual simulations from each KOP that were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Using the photographs acquired at KOP 1 through KOP 6, a 3-D physical massing model was created that incorporated the PV scale model, placed in array configurations as shown in the site plan provided in **Exhibit 2.0-2, Project Site**. Since the publication of the Draft EIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade.

62-3

Comment Summary:

This comment states that the on-ramp where KOP 2 was taken is substantially lower than the actual view of 1-40 because the on-ramp increases in elevation towards I-40. The commenter states that the lower vantage point makes the project seem smaller in the distance than a viewpoint from I-40. The commenter states that the wide-angle KOP 2 photo does not represent a motorist viewpoint from I-40.

Response:

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis and for information regarding Supplemental Visual Simulation KOP 2, which shows

views of the site from Hidden Springs Road, south of I-40. The visual simulations in the EIR include three-dimensional (3-D) visual simulations from each KOP that were rendered to approximate the visual conditions resulting with project implementation, using standard visual simulation protocol. Using the photographs acquired at KOP 1 through KOP 6, a 3-D physical massing model was created that incorporated the PV scale model, placed in array configurations as shown in the site plan provided in **Exhibit 2.0-2, Project Site**. Since the publication of the DEIR, the project sponsor has clarified that the height of the panels will be no more than 12 feet from grade. The visual simulations shown in the EIR were prepared assuming panel heights of 12 feet from grade.

62-4

Comment Summary:

This comment states that wide-angle photos distort visual perspective by making foreground objectives and distances appear larger while making background objects appear smaller. The commenter then describes the calculations the commenter used to determine distances of objectives in the photo. The commenter states that view of the solar panels are “shrunken down” due to the distorted-perspective photo simulation.

Response:

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis. Refer to Response 62-3 above.

62-5

Comment Summary:

This comment states that the conclusions in the EIR are false because the aesthetics section used “wide-angle distance and size minimization techniques to give the false impression that solar project’s impact on the viewshed is almost negligible.” The commenter disagrees with KOPs 1, 3, 4, and 6.

Response:

Please refer to Master Response 7 for more information on the findings and methods used in the visual analysis. Refer to Response 62-3 above.

62-6

Comment Summary:

The comment expresses disagreement with the conclusion for Impact 3.1-1.

Response:

Please refer to Master Response 7 for more information on the methods used to perform the visual analysis. All analyses in the EIR are based on factual substantiation.

62-7

Comment Summary:

The comment expresses disagreement with the conclusion for Impact 3.1-2.

Response:

Please refer to Master Response 7 for more information on the methods used to perform the visual analysis. All analyses in the EIR are based on factual substantiation.

62-8

Comment Summary:

The comment expresses disagreement with the conclusion for Impact 3.1-3.

Response:

Please refer to Master Response 7 for more information on the methods used to perform the visual analysis. All analyses in the EIR are based on factual substantiation.

62-9

Comment Summary:

The comment expresses disagreement with the conclusion for Impact 3.3-5.

Response:

Please refer to Master Response 7 for more information on the methods used to perform the visual analysis. All analyses in the EIR are based on factual substantiation. No further response is required.

62-10

Comment Summary:

The commenter states that for the reasons described previously in the EIR, the entire project should be cancelled.

Response:

Under CEQA, the Lead Agency has the discretion to approve the proposed project with the recommended mitigation or to adopt an alternative, including the No Project Alternative, that avoids or substantially lessens the significant impacts of the proposed project.

Section 3.0
Errata

3.1 INTRODUCTION TO THE ERRATA

The changes to the Draft EIR presented below do not affect the overall conclusions of the environmental document, and instead provide clarification, amplification and/or insignificant modifications, as needed to address public comments on the Draft EIR, or due to additional information received during the public review period.

These clarifications and corrections do not warrant Draft EIR recirculation pursuant to CEQA Guidelines Section 15088.5. None of the changes or information provided in the comments reflect a new significant environmental impact, a substantial increase in the severity of an environmental impact for which mitigation is not proposed, or a new feasible alternative or mitigation measure that would clearly lessen significant environmental impacts but is not adopted.

Changes to the Draft EIR are listed by Section, page, paragraph, etc. to best guide the reader to the revision. Changes are identified as follows:

- Deletions are indicated by ~~strikeout text~~
- Additions are indicated by <u>underline text</u>

3.2 CHANGES TO THE DRAFT EIR

SECTION 0.3, TABLE OF CONTENTS

Technical Appendices: *Based on comments received, the project applicant provided three additional technical memorandums, Air Quality Risk Assessment, Solar Power Installations Effects on Avionics, and Updated Grading Memorandum. The findings and substantiations in the technical memorandums do not affect the overall conclusions of the environmental document, and instead provide clarification, amplification and/or insignificant modifications, as needed to address public comments on the Draft EIR. The table of contents has been updated to reflect the additional appendices. The three technical memorandums are included in their entirety under Section 3.3, Additional Technical Memorandums, of this document.* **(***EIR page viii)*

<u>Appendix L</u>	<u>Air Quality Risk Assessment</u>
<u>Appendix M</u>	<u>Solar Power Installations Effects on Avionics</u>
<u>Appendix N</u>	<u>Updated Grading Memorandum</u>

SECTION ES, EXECUTIVE SUMMARY

Table ES-1: Environmental Impact Summary: *The Executive Summary remains unchanged, save for updates to mitigation measures contained in Table ES-1. Revisions to mitigation measures AIR-*

1, AIR-3, BIO-1, BIO-2, BIO-3, BIO-5, HM-1, HM-2, and new mitigation measure CUL-9 are detailed below. To avoid unnecessary duplication in this section, an updated Table ES-1 is not reproduced here, but should be considered to include the comprehensive list of mitigation measures as revised. Note also that the project's Mitigation Monitoring and Reporting Program (MMRP) and Conditions of Approval also include the updated measures. (EIR pages ES-5 to ES-41)

SECTION 2.0, PROJECT DESCRIPTION

Solar Array: *Based on comments received, the project applicant has clarified that the height of the panels will be no more than 12 feet from grade.* **(***EIR page 2.0-7)*

Solar panels would be mounted on a tracking system that would be supported, when practical, by driven piers (piles) directly embedded into the ground. Panels would be organized in rows in a uniform grid pattern, with each row separated by approximately 10-20 feet (from post to post). A fixed-tilt racking system, which does not track the sun, may also be used if deemed suitable. ~~Panels are proposed to be a maximum of 20 feet in height.~~ Panels are proposed to be a maximum of 12 feet above grade.

Site Preparation and Grading: *Since publication of the Draft EIR, the project applicant has modified the grading methods that will be used on-site. The text below has been updated to describe those grading methods and to clarify how the new grading methods will affect analyses in the EIR.* **(***EIR page 2.0-13)*

Site preparation would consist of clearing, grubbing, scarifying, recompacting, and limited grading to ~~level the site and~~ remove any mounds or holes that remain from the previous land use. Since the site is already relatively flat, the project applicant will use solar equipment that has a higher tolerance for uneven ground surfaces than previously developed solar sites. This will allow the use of less intensive site preparation methods, such as the mow-and-roll (agricultural land) and plate-and-roll (native vegetation) techniques. Using these methods allows native vegetation and root systems to remain intact in the compacted soil to provide soil stability and quicker regeneration of vegetative cover.

Areas comprising the solar field will be prepared by either the mow-and-roll technique for agricultural land or plate-and-roll technique for native vegetation. The project site will then be grubbed to remove any large stumps. A water truck will follow closely alongside the tractor to moisten the soil to minimize dust. The tractor may make several passes to fully compact the vegetation into the top soil, preserving the underground root structure, top soil nutrients, and the seed base. A drum roller will then be used to flatten the surface and compact the soil under the solar field area after the mowing is complete. Limited use of scrapers for micrograding will be employed only where needed to produce a more level surface than can be produced by the plate-and-roll technique (at locations for inverter pads, stormwater basins, etc.). Limited grading will be also be required to construct stormwater detention basins, and to elevate equipment pads, substations, and the O&M building above flood levels where required per the site hydrology study. Though grading is expected to occur throughout the site, the site's cut and fill would balance and no importing or exporting of materials would be necessary.

Analyses in the EIR conservatively estimated that 5 million cubic yards of soil would be moved during grading. ~~The following is a general estimate of the project's required grading by phase: Phase 1: 1,753,000 cubic yards; Phase 2: 1,888,000 cubic yards; Phase 3: 1,726,000 cubic yards; and gen-tie: 533,000 cubic yards.~~ Based on the updated grading techniques described above, the actual amount of grading on the site is now estimated as follows: Phase 1: 200,000 cubic yards; Phase 2: 200,000 cubic yards; Phase 3: 150,000 cubic yards; and gen-tie: 10,000 cubic yards. Total grading would be approximately 560,000 cubic yards instead of the estimated 5 million cubic yards stated in the Draft EIR (see **Appendix N, Updated Grading Memorandum**). However, the construction emissions and corresponding impacts and mitigation requirements detailed in Section 3.3, Air Quality, have not been modified (thus, they conservatively over estimate emissions attributed to grading).

After grading, temporary fences would be placed around the project site, which would allow materials and equipment to be securely stored on the site. Per Mojave Desert Air Quality Management District (MDAQMD) requirements, the project applicant will develop a dust control plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with chemicals, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion.

SECTION 3.3, AIR QUALITY

Mitigation Measure AIR-1: *Based on comments received, mitigation measure **AIR-1** has been modified to clarify the dust control measures that will be implemented and location of wind fencing. The requirement that the applicant submit a revegetation plan for County review and approval prior to initiating construction has been also added to mitigation measure **AIR-1**. The revisions to mitigation measure **AIR-1** described in this section supplant all other references of mitigation measure **AIR-1** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR pages 3.3-15 to 3.3-18)*

AIR-1 Prior to the issuance of grading permits, the project applicant shall submit an Air Quality Construction Management Plan to the County for review and approval. The plan shall describe the fugitive dust control measures which would be implemented and monitored at all locations of proposed project construction. The plan shall comply with the mitigation measures described in the Fugitive Dust Control Rules enforced by the Mojave Desert Air Quality Management District (MDAQMD) (Rules 403 and 403.2), San Bernardino County Development Code Sections 83.01.040 and 84.29.035, as well as the existing State Implementation Plan available for PM_{10} and $PM_{2.5}$. The plan shall be incorporated into all contracts and contract specifications for construction work. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:

- Describing each active operation that may result in the generation of fugitive dust.
- Identifying all sources of fugitive dust, e.g., earthmoving, storage piles, vehicular traffic.
- Describing the control measures to be applied to each of the sources identified. The descriptions shall be sufficiently detailed to demonstrate that the best available control measures required by air districts for solar projects are used.
- Providing the following control measures, in addition to or as listed in the applicable rules, but not limited to:
    - Manage and limit disturbance of ground surfaces from vehicle traffic, excavation, grading, vegetation removal, or other activities to lower the potential for soil detachment and reduce dust transport. Maximize the use of compaction methods rather than the removal of top soil other than in areas where excavation or grading are required. ~~Only trim vegetation (mow and roll) in areas where solar panels will be installed, rather than remove vegetation entirely (clear and grub) followed by excavation or grading where feasible.~~ This process referred to as mow-and-roll (agricultural land) or plate-and-roll (native vegetation) lessens the level of ground disturbance and leaves the root system in place for quicker regeneration of vegetative cover.
    - Maintenance and access vehicular roads and parking areas shall be stabilized with water, chemicals or gravel or asphaltic pavement sufficient to minimize visible fugitive dust from vehicular travel and wind erosion and comply with MDAQMD Rule 403.2. Actions, including sweeping sealed roads, use of stabilized construction/facility entrances, and, if needed, using one or more entrance/exit vehicle tire wash apparatuses, shall be taken to prevent project-related track-out. Any project-related track-out must be cleaned within 24 hours.
    - ~~All p~~Perimeter fencing, ~~as applicable~~ in locations as shown on Exhibit 3.3-1, shall be wind fencing or the equivalent, to a minimum of 4 feet of height ~~or the top~~ of ~~all~~ perimeter fencing in the areas identified in the Wind Fencing Plan. The owner/operator shall maintain the wind fencing as needed to keep it intact and remove windblown dropout. Strategically placed wind barrier fencing, to be constructed as part of the construction and operation phases (in locations shown in **Exhibit 3.3-1, Wind Fence Locations**) would be maintained to minimize dust blowing in the direction of the adjacent residences or the Barstow-Daggett Airport.
    - Use natural vegetation to stabilize disturbed or otherwise unstable surfaces to the extent feasible. A water truck shall be used to maintain

most disturbed surfaces and to actively spread water during visible dusting episodes to minimize visible fugitive dust and limit emissions to 20 percent opacity in areas where grading occurs, within the staging areas, and on any unpaved roads. For projects with exposed sand or fines deposits (and for projects that expose such soils through earthmoving), chemical stabilization or covering with a stabilizing layer of gravel may be required to eliminate visible dust/sand from sand/fines deposit, if water application does not achieve stabilization. Other controls could include application of hydromulch (with seed for re-establishment of vegetation), application of soil binders, or ~~even~~ the use of soil cement for particularly unstable areas.

- Minimize the idling time of diesel-powered construction equipment to two minutes, except in extreme heat events where workers require conditioned air to avoid health and safety issues.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- On-site vehicle speed shall be limited to 15 miles per hour.
- The following signage shall be erected not later than the commencement of construction:
- A minimum 48-inch-high by 96-inch-wide sign containing the following information shall be located within 50 feet of each project site entrance, meeting the specified minimum text height, black text on white background, on 1-inch A/C laminated plywood board, with the lower edge between 6 and 7 feet above grade, with the contact name of a responsible official for the site and a local or toll-free number that is accessible 24 hours per day.

"Site Name" (4-inch text)
"Project Name/Project Number" (4-inch text)
IF YOU SEE DUST COMING FROM THIS PROJECT, CALL: (4-inch text)
[Contact Name]. PHONE NUMBER: XXX-XXX-XXXX (6-inch text)
IF YOU DO NOT RECEIVE A RESPONSE, PLEASE CALL the MDAQMD at 1-800-635-4617. (3-inch text)

- The project applicant or its designated representative shall obtain prior approval from the MDAQMD prior to any deviations from fugitive dust control measures specified in the approved Air Quality Construction Management Plan. A justification statement used to explain the technical and safety reason(s) for the substitute dust control measures required shall be submitted to the appropriate agency for review.

- The provisions of the Air Quality Construction Management Plan shall also apply to project decommissioning activities. The project sponsor will submit a revegetation plan for County review and approval prior to initiating construction.

Mitigation Measure AIR-3: *Based on comments received, mitigation measure **AIR-3** has been modified to clarify the requirements for post-construction site stabilization. The revisions to mitigation measure **AIR-3** described in this section supplant all other references of mitigation measure **AIR-3** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR pages 3.3-28 to 3.3-29)*

AIR-3 Prior to the issuance of grading or building permits, the project applicant shall develop a Dust Control Plan (DCP) per the requirements of MDAQMD Rule 403.2. The DCP shall comply with MDAQMD Rules 403 and 403.2 to control fugitive dust, including PM_{10}, by addressing objectives, key contacts, roles and responsibilities, dust sources, and control measures.

The DCP shall address the following sources:

- Project-created dust sources
- Disturbed surfaces
- Unstable surfaces
- Unpaved roads
- Paved roads
- Unspecified sources

To mitigate each of the sources identified above during facility operation, including post-closure of a facility, there are often multiple mitigation measures available that can feasibly mitigate impacts to less than significant levels. The DCP would include but not be limited to the following measures:

- **Limit Ground Disturbance.** Manage and limit disturbance of ground surfaces from vehicle traffic, excavation, grading, vegetation removal, or other activities to lower the potential for soil detachment and reduce dust transport. Only trim vegetation (mow and roll) in areas where solar panels will be installed, rather than remove vegetation entirely (clear and grub) followed by excavation or grading where feasible. This process lessens the level of ground disturbance and leaves the root system in place for quicker regeneration of vegetative cover.

- **Vegetation.** Use natural vegetation to stabilize disturbed or otherwise unstable surfaces to the extent feasible.
- **Wind Fencing.** Strategically placed wind barrier fencing shall be installed as part of the construction and operation phases (shown in **Exhibit 3.3-1, Wind Fence Locations**) and be maintained to minimize dust blowing in the direction of the adjacent residences or the Barstow-Daggett Airport. Wind barrier fencing should be inspected by the contractor no less than once quarterly and repaired or replaced as needed to maintain full functionality. Any accumulated sediment would be removed and either re-distributed onsite or transferred off-site for use or disposal elsewhere.
- **Surface Treatment.** Water trucks shall apply water and/or other controls to minimize the production of airborne dust, and limit emissions to 20 percent opacity in areas where grading occurs, within the staging areas, and on any unpaved roads used during project construction. Other controls could include application of hydromulch (with seed for re-establishment of vegetation), application of soil binders, or even the use of soil cement for particularly unstable areas.
- **Vehicle Speed Limits.** Vehicle speed shall be limited speeds to 15 mph. Speed limit signs shall be displayed prominently at all project/facility entrances.
- **Street Sweeping.** Sealed roads shall be swept as needed and track out opportunities limited through the use of stabilized construction/facility entrances or, if necessary, with one or more entrance/exit vehicle tire wash apparatuses.

Post-Construction Site Stabilization. After construction is complete, disturbed areas will be stabilized at a minimum in accordance with the Stormwater Pollution Prevention Plan (SWPPP), the measures set forth in **AIR-3,** and Attachment 3 (Revegetation Management Details) to the Dust Control Technical Memorandum (**Appendix D-2** to the Draft EIR). If the revegetated ground cover for newly planted materials is less than 50% of baseline, the project applicant shall continue to implement measures to revegetate until 50% of the revegetated ground cover has been achieved or stabilized via other approved method.

SECTION 3.4, BIOLOGICAL RESOURCES

Mitigation Measure BIO-1: *Based on comments received, the requirement that the applicant notify and consult with the USFWS and CDFW if tortoise or tortoise signs are identified during pre-construction surveys has been added to mitigation measure **BIO-1**. Additionally, the project applicant will add best management practices to mitigation measure **BIO-1** to further minimize the potential impacts from ravens on desert tortoises. The revisions to mitigation measure **BIO-1** described in this section supplant all other references of mitigation measure **BIO-1** throughout*

the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR pages 3.4-26 to 3.4-27)

BIO-1 To avoid construction-level impacts to desert tortoise, not more than 45 days prior to ground-disturbing activities for the construction and/or decommissioning phase(s), qualified personnel shall perform a preconstruction clearance survey for desert tortoise. The applicant shall notify and consult with the United States Fish and Wildlife Services (USFWS) and California Department of Fish and Wildlife (CDFW) if tortoise or tortoise sign is identified during pre-construction surveys. If the species is present on-site, individual(s) shall be allowed to leave the site on their own, and in consultation with ~~California Department of Wish and Wildlife~~ CDFW, the applicant may be required to install exclusionary/perimeter fencing, with mesh attached to the fence fabric extending from approximately 12 inches below grade to approximately 24 inches above grade to ensure no tortoises re-enter the work limits. No person(s) shall be allowed to touch a tortoise without authorization from ~~the US Fish and Wildlife Service (~~USFWS~~)~~ and CDFW.

Disturbance activities shall be monitored, as follows:

- Environmental awareness training shall be provided for all construction personnel to educate them on desert tortoise, protective status, and avoidance measures to be implemented by all personnel, including looking under vehicles and equipment prior to moving. If tortoises are encountered, such vehicles shall not be moved until the tortoises have voluntarily moved away from them or a qualified biologist has moved the tortoises out of harm's way.
- If a tortoise is present, a biological monitor shall be present during all disturbance activities in the vicinity of exclusionary fencing (if required) and shall have the authority to stop work as needed to avoid direct impacts to tortoises. Periodic biological inspections and maintenance shall be conducted during the construction period to ensure the integrity of exclusionary fencing (if required). Work may proceed within the excluded area when the biologist confirms all tortoises have left the excluded area.
- Should tortoises be found during construction activities, the biological monitor shall have the authority to stop work as needed to avoid direct impacts to tortoises, and further consultations with the USFWS and CDFW shall take place.
- Trash and food items shall be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators of desert tortoise (e.g., ravens, coyotes, feral dogs).

- Employees shall not bring pets to the construction site, which may predate on tortoises.
- A trash collection system will be established to ensure that all food and other refuse that could attract tortoise predators is properly disposed of in self-closing, sealable containers with lids that latch to prevent entry by wind, common ravens, and mammals.
- All trash receptacles will be regularly inspected and emptied daily to prevent spillage and maintain sanitary conditions. The receptacles will be removed from the project area when construction or O&M activities are complete.
- Road-killed animals or other carcasses detected during construction or O&M activities will reported to a qualified biologist. If determined to be non-special-status species, the carcass will be picked up and disposed of immediately (e.g., removal to a landfill or disposal. For special-status species road-kill, a qualified biologist or project representative will contact the USFWS or CDFW, as applicable, prior to removal and disposal.
- During construction and O&M, storage of materials (e.g., food, trash) that may potentially attract predators will be limited to containers that are not easily accessible to wildlife.
- Use of water for purposes such as fugitive dust abatement will not be allowed to pool such that it attracts ravens and other tortoise predators.

Mitigation Measure BIO-2: *Based on comments received, the requirement that the applicant conduct a Burrowing Owl Mitigation and Monitoring Plan has been updated in mitigation measure **BIO-2.** The Plan will be prepared and submitted to CDFW a minimum of 60 days prior to the start of ground-disturbing activities. This will include the measures currently identified in mitigation measure **BIO-2** and appropriate measures in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation. The buffer distance for burrowing owl has been increased to 500 meters from 250 feet. The revisions to mitigation measure **BIO-2** described in this section supplant all other references of mitigation measure **BIO-2** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR pages 3.4-27 to 3.4-28)*

BIO-2 To avoid construction-level impacts to burrowing owl, not more than 45 days prior to project disturbance activities, qualified personnel shall perform a preconstruction clearance survey for burrowing owl in accordance with CDFW guidelines. If the species is present on-site and/or within 500 feet of the site, the biologist shall prepare and submit a passive relocation plan to the CDFW for review/approval and shall implement the approved plan to allow commencement of disturbance activities on-site.

Fencing or flagging shall be installed at a 500 meter ~~250-foot~~ radius from occupied burrows to create a non-disturbance buffer area where no work activities may be conducted. Through consultation with the CDFW, the non-disturbance buffers/fence lines may be reduced to 160 feet if all project-related activities that might disturb burrowing owls would be conducted during the nonbreeding season (i.e., September 1 through January 31).

If avoidance of an occupied burrow is infeasible, the owls may be passively relocated by a qualified biologist during the non-breeding season, in accordance with the passive relocation plan. (Note: Occupied burrows may not be disturbed during the breeding season [February 1 to August 31].) At a minimum, the plan shall include the following performance standards:

- Excavation shall require hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow and monitored for at least 48 hours after installation. If burrows will not be directly impacted by the project, one-way doors shall be installed to prevent use and shall be removed after ground-disturbing activities have concluded in the area. Only burrows that will be directly impacted by the project shall be excavated and filled.
- Detailed methods and guidance for passive relocation of burrowing owls to off-site "replacement burrow site(s)" consisting of a minimum of two suitable, unoccupied burrows for every burrowing owl or pair to be passively relocated.
- At a minimum of 60 days prior to commencement of scheduled ground disturbance, the project applicant is to submit a Burrowing Owl Mitigation and Monitoring Plan to the CDFW that outlines policies and procedures to minimize unanticipated impacts to burrowing owls during construction, operations, and decommissioning. The Plan shall include the mitigation measures listed in **BIO-2** and additional appropriate measures in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation. ~~Monitoring and management of the replacement burrow site(s) and a reporting plan.~~ The objective shall be to manage the replacement burrow sites for the benefit of burrowing owls (e.g., minimizing weed cover), with the specific goals of maintaining the functionality of the burrows for a minimum of 2 years.

If preconstruction surveys indicate construction activities would occur within 500 feet of off-site occupied burrows during the breeding season (February 1 through August 31), qualified personnel shall monitor project disturbance activities and the off-site active burrows to ensure they are not being adversely affected. If so, the

biologist in consultation with the CDFW shall implement additional measures to avoid such disturbances of active nesting efforts.

Mitigation Measure BIO-3: *Based on comments received, the Desert Kit Fox Monitoring Plan will be prepared and submitted to the CDFW a minimum of 60 days prior to the start of ground-disturbing activities instead of 45 days listed in the Draft EIR. The revisions to mitigation measure **BIO-3** described in this section supplant all other references of mitigation measure **BIO-3** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR pages 3.4-28 to 3.4-29)*

BIO-3 To avoid construction level impacts to desert kit fox, at least 60 ~~45~~ days prior to project ground disturbance activities during the construction phase, a Desert Kit Fox Management Plan shall be prepared and submitted to the County and the CDFW that (1) incorporates pre-approval survey data of the desert kit fox population; (2) identifies preconstruction survey methods for kit foxes; (3) describes preconstruction and construction-phase biological monitoring and passive relocation methods, or outlines any identified CDFW permit and Memorandum of Understanding requirements for active relocation, if either are necessary; and (4) includes contingency measures if canine distemper is documented in any individuals on-site.

Mitigation Measure BIO-5: *Based on comments received, the project applicant will prepare and submit a Bird and Bat Conservation Plan to the County who will consult with the CDFW. Mitigation measure **BIO-5** has been updated to include the Plan and outline the requirements. The revisions to mitigation measure **BIO-5** described in this section supplant all other references of mitigation measure **BIO-5** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR pages 3.4-30 to 3.4-31)*

BIO-5 To avoid construction-level impacts to nesting birds, the following measures are required:

- No earlier than 3 days prior to commencement of scheduled ground disturbance during the nesting bird breeding season (February 1 through August 31), qualified personnel shall perform a nest survey within 500 feet of the disturbance footprint, as accessible. If active nests are found, project disturbance activities shall be postponed or halted within a non-disturbance buffer surrounding each active nest (to be established by the biologist) that is suitable to the particular bird species and nest location(s) until the nest(s) are vacated and juveniles have fledged, as determined by the biologist. Any such buffer(s) shall be clearly demarcated in the field with highly visible construction

fencing or flagging, and construction personnel shall be instructed on the sensitivity of nest areas. A biologist shall monitor construction activities near all such buffer(s) to ensure no inadvertent impacts on active nest(s). If listed species are involved, the CDFW and/or USFWS shall be notified immediately for consultation on how to proceed.

- At a minimum of 60 days prior to commencement of operations, the project applicant shall submit a Bird and Bat Conservation Plan (Plan) to the County for review and approval. The Plan will outline policies and procedures to minimize unanticipated impacts to birds and bats during operations. Site personnel will be provided a set of standardized instructions to follow in response to any bird or bat incidents on-site. The Plan shall include procedures on how to document any bird or bat species discovered dead or injured on the project site. In the event of an injury or death of a listed species, CDFW and/or USFWS shall be contacted to consult on appropriate next steps. The Plan shall be implemented for the life of the project.

SECTION 3.5, CULTURAL, TRIBAL CULTURAL, AND PALEONTOLOGICAL RESOURCES

Mitigation Measure BIO-9: *Based on comments received, the requirement that a tribal monitor be present on-site during ground disturbing excavation activities has been added as mitigation measure **CUL-9**. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR page 3.4-24)*

CUL-9 Prior to ground-disturbing activities, the project proponent shall provide evidence that a Native American tribal monitor from the Morongo Band of Mission Indians has been retained to monitor ground disturbing excavation activities.

SECTION 3.8, HAZARDS AND HAZARDOUS MATERIALS

Impact 3.8-2: *Mitigation measure **HM-1** has been updated to clarify that additional sampling and validation of REC locations are only required for Phase 2. (EIR page 3.8-22)*

HM-1 The following actions shall be taken to address the potential RECs associated with the project site.

- Perform a review of relevant environmental documents of the properties associated with the RECs (Barstow-Daggett Airport) to validate the REC conclusion and further evaluate potential contaminants and areas of concern in order to inform locations where shallow soil sampling may be required and any soil disposal requirements prior to issuance of the grading permit for Phase 2 only (not required for other phases).
- Perform shallow soil sampling along the project site boundaries that are immediately adjacent to the Barstow-Daggett Airport in locations determined

by the review required above and where grading is planned to screen the soils for elevated contaminant prior to issuance of the grading permit for Phase 2 only (not required for other phases).

- Prior to issuance of a grading permit, prepare a Soil Management Plan to provide background information regarding the project site, highlight areas of concern that the grading contractor should be aware of during grading activities, and define the procedures for addressing suspected contaminated materials or subsurface anomalies that may be encountered during grading activities.

Impact 3.8-5: *Description of the Determination of No Hazard process has been updated for further clarification. Mitigation measure **HM-2** has also been updated to reflect the change. The revisions to mitigation measure **HM-2** described in this section supplant all other references of mitigation measure **HM-2** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR page 3.8-25 to 3.8-26)*

Safety Area 1 is designated as both a runway object-free area (OFA) and a runway protection zone (RPZ). The project portion within Safety Area 1 is located within the RPZ, while no project features are located in the OFA. The intention of the RPZ is to identify and preserve an area off each runway end that has significant potential for aircraft crashes during takeoffs and landings. Per the FAA Airport Solar Guide (2018), while it is desirable to keep all objects clear in the RPZ, some structures are permitted in the RPZ as long as they do not attract wildlife, are outside the OFA, and do not interfere with navigational aids. Therefore, depending on the proposed use, development in the RPZ is either prohibited or restricted based on FAA requirements.

Development, and associated design features, that might create glare, produce misleading lights, or lead to the construction of residences, fuel handling and storage facilities, smoke generating activities, and places of public assembly are prohibited in the RPZ. ~~Furthermore,~~ However, according to current FAA guidance, solar panels are not prohibited within runway protection zones (RPZs) and have been approved in RPZs on a case-by-case basis (FAA, 2018). Therefore, impacts are potentially significant.

FAA review and approval is typically not required for solar projects located on private land unless the project's proposed structures are higher than 200 feet and/or within 20,000 feet of a public use or military airport and penetrates the 100:1 foot slope from any point on the runway outwards, in which case FAA airspace review is required (FAA 2018; 14 CFR Part 77.9). Therefore, the applicant will be required to obtain a Form 7460-1 Determination of No Hazard or equivalent from the Federal Aviation Administration (FAA) at representative project locations to verify that structures do not pose a hazard to aircraft navigation prior to issuance of building and grading permits from the County. Development of the project in the RPZ would be in accordance with

guidance for Safety Review Areas, and in consultation with the FAA and Airport Land Use Commission (ALUC). FAA review and issuance of a Form 7460-1 Determination of No Hazard or equivalent will require the project applicant ~~would~~ to incorporate final design modifications and safety features (e.g., maximum height, clearance requirements) in accordance with the Obstruction Evaluation (Tetra Tech 2018b; see Attachment 3 of **Appendix H-3**). In addition, project facilities including solar energy equipment ~~panels~~, fences and transmission line structures ~~poles~~ within the RPZ or Safety Area 1 would be reviewed by the FAA under the Form 7460-1 process for potential hazard identification ~~for compatibility with airport operations~~. If the ~~FAA finds that~~ development within the Safety Areas does not pose a hazard to airport activities ~~based on height, glare, proximity to runways, and other air navigation safety factors~~, the FAA may issue a Form 7460-1 Determination of No Hazard or equivalent~~, which gives the applicant approval to proceed with the project as designed~~. If the FAA finds that the structures within the RPZ do not comply with FAA requirements, the FAA may require project alterations, such as removing solar panels from the RPZ or undergrounding utilities, before a Form 7460-1 Determination of No Hazard or equivalent is granted ~~to the applicant~~. Potential impacts to airport operations and public safety would be minimized to a less than significant level with implementation of mitigation measure **HM-2** by requiring the applicant to provide the County evidence of ~~with~~ a Form 7460-1 Determination of No Hazard or equivalent for the applicable structure from the FAA prior to issuance of building or grading permits.

HM-2 Prior to issuance of building and grading permits for each CUP phase, the Applicant shall provide to the County a Form 7460-1 Determination of No Hazard or equivalent issued by the Federal Aviation Administration (FAA) at representative perimeter locations of the CUP phase to verify that structures do not pose a hazard to aircraft navigation.

SECTION 3.9, HYDROLOGY AND WATER QUALITY

Impact 3.9-4: *The last paragraph of Impact 3.9-4 contained a typo regarding the total wash flow increase as a result project implementation. The amount of total wash flow should be 19,070 cfs which is a 3 percent increase instead of a 1 percent increase. (EIR page 3.9-28)*

The published peak 100-year flow for the Mojave River (downstream conveyance for the project site) is 18,500 cfs. Therefore, the proposed site-wide increase of 570 cfs would result in a total wash flow of ~~18,500~~ 19,070 cfs, a ~~1~~ 3 percent increase. Based on the negligible increase in flows expected from project implementation, along with the anticipated regrowth of natural vegetative cover, which would reduce peak flows to near-existing conditions, a less than significant impact would occur.

SECTION 3.10, LAND USE AND PLANNING

Impact 3.10-2: *The description of the required height variance has been updated to clarify the approval process and type of structures that will require a height variance.* **(***EIR page 3.10-12 to 3.10-13)*

Height Variance

The project is also seeking an exception and a variance from the height restrictions pursuant to Development Code Section ~~Chapters~~ 83.02.040(c)(2)(T) and 85.17. The general height limits within the Desert District are 75 feet within the IR zone and 35 feet within the AG, RC and RL zones. Development Code Section ~~Chapter~~ 83.020.040 allows for miscellaneous structures to be increased by up to 50 percent of the height limit for the applicable zone. With a height exception, the applicable height limits would be 112.50 feet in the IR zone and 52.5 feet in the AG, RC and RL zones. The project is proposing to obtain a variance pursuant to Development Code Chapter 85.17 from this height restriction to allow gen-tie structures ~~poles~~ up to 159 feet in height.

While the gen-tie structures ~~line poles~~ would generally be up to 120 feet in height to accommodate engineering and safety clearance requirements, some poles may need to be up to 159 feet in height at locations where the lines would cross over the existing 60-foot high-voltage transmission lines in the area, while other structures ~~poles~~ may be considerably shorter than 120 feet. Additionally, some sections of the gen-tie line may be placed underground where necessary, particularly in the areas of the Barstow-Daggett Airport and the LADWP transmission lines ~~right-of-way~~, thereby eliminating the need for poles in those sections. The specific ~~final~~ gen-tie alignments and associated structure ~~pole~~ locations and heights will be determined in concurrence with application for building and electrical permits. ~~not be known until the proposed project's final engineering stage.~~

The project site is located near several existing transmission lines of varying heights. Variance from the County's height restrictions would not be distinctive in this area due to the presence of the existing transmission lines and therefore the variance would not result in significant impacts to the aesthetics of the area; refer to Section 3.1, Aesthetics and Visual Resources, for additional discussion.

Impact 3.10-2: *Description of the Determination of No Hazard process has been updated for clarification. Mitigation measure* ***HM-2*** *has also been updated to reflect the change. The revisions to mitigation measure* ***HM-2*** *described in this section supplant all other references of mitigation measure* ***HM-2*** *throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR page 3.10-27 to 3.10-28)*

Safety Area 1 is designated as both a runway object-free area (OFA) and a runway protection zone (RPZ). The project portion within Safety Area 1 is located within the RPZ, while no project features are located in the OFA. The intention of the RPZ is to identify and preserve an area off each runway end that has significant potential for aircraft crashes during takeoffs and landings.

Per the FAA Airport Solar Guide (2018), while it is desirable to keep all objects clear in the RPZ, some structures are permitted in the RPZ as long as they do not attract wildlife, are outside the OFA, and do not interfere with navigational aids. Therefore, depending on the proposed use, development in the RPZ is either prohibited or restricted based on FAA requirements.

Development, and associated design features, that might create glare, produce misleading lights, or lead to the construction of residences, fuel handling and storage facilities, smoke generating activities, and places of public assembly are prohibited in the RPZ. ~~Furthermore,~~ However, according to current FAA guidance, solar panels are not prohibited within runway protection zones (RPZs) and have been approved in RPZs on a case-by-case basis (FAA, 2018). Therefore, impacts are potentially significant.

FAA review and approval is typically not required for solar projects located on private land unless the project's proposed structures are higher than 200 feet and/or within 20,000 feet of a public use or military airport and penetrates the 100:1 foot slope from any point on the runway outwards, in which case FAA airspace review is required (FAA 2018; 14 CFR Part 77.9). Therefore, the applicant will be required to obtain a Form 7460-1 Determination of No Hazard or equivalent from the Federal Aviation Administration (FAA) at representative locations to verify that structures do not pose a hazard to aircraft navigation prior to issuance of building and grading permits from the County. Development of the project in the RPZ would be in accordance with guidance for Safety Review Areas, and in consultation with the FAA and Airport Land Use Commission (ALUC). FAA review and issuance of a Form 7460-1 Determination of No Hazard or equivalent will require the project applicant ~~would~~ to incorporate final design modifications and safety features (e.g., maximum height, clearance requirements) in accordance with the Obstruction Evaluation (Tetra Tech 2018b; see Attachment 3 of **Appendix H-3**). In addition, project facilities including solar energy equipment ~~panels~~, fences and transmission line structures ~~poles~~ within the RPZ or Safety Area 1 would be reviewed by the FAA under the Form 7460-1 process for potential hazard identification ~~for compatibility with airport operations~~. If the ~~FAA finds that~~ development within the Safety Areas does not pose a hazard to airport activities ~~based on height, glare, proximity to runways, and other air navigation safety factors~~, the FAA may issue a Form 7460-1 Determination of No Hazard or equivalent~~, which gives the applicant approval to proceed with the project as designed~~. If the FAA finds that the structures within the RPZ do not comply with FAA requirements, the FAA may require project alterations, such as removing solar panels from the RPZ or undergrounding utilities, before a Form 7460-1 Determination of No Hazard or equivalent is granted ~~to the applicant~~. Potential impacts to airport operations and public safety would be minimized to a less than significant level with implementation of mitigation measure **HM-2** by requiring the applicant to provide the County evidence of ~~with~~ a Form 7460-1 Determination of No Hazard or equivalent for the applicable structure from the FAA prior to issuance of building or grading permits.

HM-2 Prior to issuance of building and grading permits for each CUP phase, the Applicant shall provide to the County a Form 7460-1 Determination of No Hazard or equivalent

issued by the Federal Aviation Administration (FAA) at representative perimeter locations of the CUP phase to verify that structures do not pose a hazard to aircraft navigation.

Table 3.10-3: *An error occurs in the title of Table 3.10-3 where the title lists Development Code Section 85.06.035 instead of 86.29.035. (EIR pages 3.10-20 to 3.10-26)*

Table 3.10-3:
Project Consistency with Applicable Policies of Development Code Section 85.~~06~~ 29.035

SECTION 3.12, TRANSPORTATION

Impact 3.12-3: *Description of the Determination of No Hazard process has been updated for clarification. Mitigation measure **HM-2** has also been updated to reflect the change. The revisions to mitigation measure **HM-2** described in this section supplant all other references of mitigation measure **HM-2** throughout the EIR, including Section ES, Executive Summary. The mitigation measures described in the Mitigation and Monitoring Reporting Program (MMRP) reflect the changes in the Final EIR and the MMRP is considered the official source for mitigation requirements. (EIR page 3.12-8 to 3.12-9)*

Safety Area 1 is designated as both a runway object-free area (OFA) and a runway protection zone (RPZ). The project portion within Safety Area 1 is located within the RPZ, while no project features are located in the OFA. The intention of the RPZ is to identify and preserve an area off each runway end that has significant potential for aircraft crashes during takeoffs and landings. Per the FAA Airport Solar Guide (2018), while it is desirable to keep all objects clear in the RPZ, some structures are permitted in the RPZ as long as they do not attract wildlife, are outside the OFA, and do not interfere with navigational aids. Therefore, depending on the proposed use, development in the RPZ is either prohibited or restricted based on FAA requirements.

Development, and associated design features, that might create glare, produce misleading lights, or lead to the construction of residences, fuel handling and storage facilities, smoke generating activities, and places of public assembly are prohibited in the RPZ. ~~Furthermore,~~ However, according to current FAA guidance, solar panels are not prohibited within runway protection zones (RPZs) and have been approved in RPZs on a case-by-case basis (FAA, 2018). Therefore, impacts are potentially significant.

FAA review and approval is typically not required for solar projects located on private land unless the project's proposed structures are higher than 200 feet and/or within 20,000 feet of a public use or military airport and penetrates the 100:1 foot slope from any point on the runway outwards, in which case FAA airspace review is required (FAA 2018; 14 CFR Part 77.9). Therefore, the applicant will be required to obtain a Form 7460-1 Determination of No Hazard or equivalent from the Federal Aviation Administration (FAA) at representative locations to verify that structures do not pose a hazard to aircraft navigation prior to issuance of building and grading permits from the County. Development of the project in the RPZ would be in accordance with

guidance for Safety Review Areas, and in consultation with the FAA and Airport Land Use Commission (ALUC). FAA review and issuance of a Form 7460-1 Determination of No Hazard or equivalent will require the project applicant ~~would~~ to incorporate final design modifications and safety features (e.g., maximum height, clearance requirements) in accordance with the Obstruction Evaluation (Tetra Tech 2018b; see Attachment 3 of **Appendix H-3**). In addition, project facilities including solar energy equipment ~~panels~~, fences and transmission line structures ~~poles~~ within the RPZ or Safety Area 1 would be reviewed by the FAA under the Form 7460-1 process for potential hazard identification ~~for compatibility with airport operations~~. If the ~~FAA finds that~~ development within the Safety Areas does not pose a hazard to airport activities ~~based on height, glare, proximity to runways, and other air navigation safety factors~~, the FAA may issue a Form 7460-1 Determination of No Hazard or equivalent~~, which gives the applicant approval to proceed with the project as designed~~. If the FAA finds that the structures within the RPZ do not comply with FAA requirements, the FAA may require project alterations, such as removing solar panels from the RPZ or undergrounding utilities, before a Form 7460-1 Determination of No Hazard or equivalent is granted ~~to the applicant~~. Potential impacts to airport operations and public safety would be minimized to a less than significant level with implementation of mitigation measure **HM-2** by requiring the applicant to provide the County evidence of ~~with~~ a Form 7460-1 Determination of No Hazard or equivalent for the applicable structure from the FAA prior to issuance of building or grading permits.

HM-2 Prior to issuance of building and grading permits for each CUP phase, the Applicant shall provide to the County a Form 7460-1 Determination of No Hazard or equivalent issued by the Federal Aviation Administration (FAA) at representative perimeter locations of the CUP phase to verify that structures do not pose a hazard to aircraft navigation.

3.3 ADDITIONAL TECHNICAL MEMORANDUMS

As described above in Section 3.2, Changes to the Draft EIR, three additional technical memorandums, *Air Quality Risk Assessment* (**Appendix L**), *Solar Power Installations Effects on Avionics* (**Appendix M**), and *Updated Grading Memorandum* (**Appendix N**), were prepared in response to concerns raised in some of the public comment letters. Information and findings in the technical memorandums are referenced in the Responses to Comments.

The findings and substantiations in these technical memorandums do not affect the overall conclusions of the environmental document, and instead provide clarification, amplification and/or insignificant modifications, as needed to address public comments on the Draft EIR. These clarifications and corrections do not warrant Draft EIR recirculation pursuant to CEQA Guidelines Section 15088.5.

Appendix L:

Air Quality Risk Assessment

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RAMBOLL

ENVIRONMENT
& HEALTH

Delivered via Electronic Mail

Patti Murphy
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RE: DAGGETT SOLAR POWER FACILITY AIR QUALITY RISK ASSESSMENT

May 20, 2019

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Dear Ms. Murphy:

This memo describes the evaluation of health impacts from criteria air pollutants resulting from the construction of Daggett Solar Power Facility. The memo includes a description of the work, and three appendices describing the detailed methodology used in this evaluation.

INTRODUCTION

While EIRs have long evaluated the health impacts of air toxic pollutants, such as diesel particulate matter, EIRs have not historically evaluated the specific health impacts of the increase in criteria pollutants[1] other than to note the general effect of criteria air pollutants on health without tying those general impacts to the project. This analysis estimates the health impacts of criteria pollutants and precursors, specifically those that are evaluated by the USEPA in rulemaking setting the ambient air quality thresholds: oxides of nitrogen (NOx), volatile organic compounds (VOC), ozone (O_3), and particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$). NOx and VOCs are not criteria air pollutants but in the presence of sunlight, they form O_3 and contribute to the formation of secondary $PM_{2.5}$ and thus are analyzed here. The health impacts from O_3 and $PM_{2.5}$ are examined for this project because the USEPA has determined that these criteria air pollutants would have the greatest impact to human health. The emissions of other criteria air pollutants are analyzed in their contribution in the formation of O_3 and secondary $PM_{2.5}$.

In order to estimate the health impacts of criteria pollutants for the Project, Ramboll applied a photochemical grid model (PGM), CAMx,[2] to estimate the small increases in concentrations of ozone and $PM_{2.5}$ in the region as a result of the emissions of criteria and precursor pollutants from the project. We then applied a USEPA-authored program, the Benefits Mapping and Analysis Program (BenMAP)[3], to estimate the

[1] Criteria pollutants are those pollutants with an air pollution standard or pollutants which are precursors to those with a standard. Pollutants with an air pollution standard include nitrogen dioxide, sulfur dioxide, ozone, carbon monoxide, particulate matter smaller than 2.5 microns and 10 microns and ozone. Precursor pollutants to criteria pollutants include oxides of nitrogen (NOx), oxides of sulfur (SOx), and volatile organic chemicals (VOCs).

[2] Comprehensive Air Quality Model with Extensions.

[3] https://www.epa.gov/benmap/benmap-ce-manual-and-appendices

resulting health impacts from the small increases in concentration. Only the impacts of ozone and $PM_{2.5}$ are estimated, as those are the pollutants that USEPA uses in BenMAP using default parameters to estimate the impact of emissions of NOx, VOCs, and $PM_{2.5}$. Ozone and $PM_{2.5}$ have the most critical health impacts and thus are the emissions evaluated to determine the project's health impacts. Because the health impacts from ozone and $PM_{2.5}$ were negligible in light of background incidences, and health impacts from other criteria pollutants would be even smaller, the health impacts of those other criteria pollutants were not quantified. This is further described below.

TECHNICAL APPROACH

The first step in the process is to run the PGM with appropriate information to assess the small increases in ambient air concentrations that the Project may cause. PGMs require a database of information including the spatial allocation of emissions in the area to be modeled. This includes both baseline emissions and Project emissions. The latest publicly available PGM database for Southern California, which contains baseline emissions, was developed by the South Coast Air Quality Management District (SCAQMD) in support of the 2016 Air Quality Management Plan (AQMP)[4] and was adapted for this analysis. This PGM database is tailored for Southern California (including San Bernardino County) using California-specific input tools (e.g., the Emission FACtors (EMFAC)[5] mobile source emissions model) and uses a high-resolution 4-km horizontal grid to better simulate meteorology and air quality in the complex terrain and coastal environment of California.

Project construction emissions included NO_X, respirable (PM_{10}) and fine ($PM_{2.5}$) primary particulate matter (PM), and VOCs. NO_X and VOC are precursors to ozone and, along with SO_2, are also precursors to secondarily formed $PM_{2.5}$. EPA's air quality modeling guidelines (Appendix W[6]) and ozone and $PM_{2.5}$ modeling guidance[7] recommends using a PGM to estimate ozone and secondary $PM_{2.5}$ concentrations. EPA's modeling guidance does not recommend specific PGMs but provides procedures for determining an appropriate PGM on a case-by-case basis. EPA's air quality modeling guidelines and guidance notes that both the Comprehensive Air-quality Model with extensions (CAMx[8]) and the Community Multiscale Air Quality (CMAQ[9]) PGMs have been used extensively in the past and would be acceptable PGMs. EPA has prepared a memorandum[10] documenting the suitability for using CAMx and CMAQ for ozone and secondary $PM_{2.5}$ modeling of single-sources or group of sources.

To estimate the potential air quality impacts of the proposed Project's construction emissions, the Project's emissions were added to the CAMx 4-km annual PGM modeling database.[11] Operational emissions from the Project were estimated as described in the Air Quality section of the Draft Environmental Impact Report (DEIR).

For use in PGMs, each Project emissions source must be spatially distributed across the modeling grid cells so that they can be incorporated into the gridded emission inventory. The total mitigated construction

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4 https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp

5 https://www.arb.ca.gov/emfac/.

6 https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf.

7 https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf.

8 http://www.camx.com/.

9 https://www.epa.gov/cmaq.

10 https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical_Grid_Model_Clarification_Memo.pdf.

11 BAAQMD performed WRF meteorological modeling for the CCOS 4-km domain and 2012 calendar year that will be processed by WRFCAMx to generate CAMx 2012 4-km meteorological inputs for the CCOS domain. The CMAQ 2012 emissions will be converted to the format used by CAMx using the CMAQ2CAMx processor.

emission inventory for the Project was used in the analysis. This includes construction equipment and mobile source emissions. The construction equipment emissions are located onsite, and were therefore allocated to the grid cells representing the project. The mobile source category includes both passenger vehicles and trucks. The mobile sources are also spatially distributed in the site's grid cells. While it is expected that passenger vehicles and trucks may travel some distance outside of the Project site, they were conservatively distributed in the site's grid cells for lack of specific information on travel routes. Annual emission estimates from the Project were spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modelling using the Sparse Matrix Operating Kernel Emissions (SMOKE) emissions modelling system supported by the USEPA. The emissions inventory, spatial allocation, and SMOKE inputs and outputs are shown in **Appendix A.**

The Southern California 2016 AQMP modeling database was used for this project. The Southern California 4-km CAMx modeling databases is based on a 2012 base meteorological year and includes a couple of future year emission scenarios. The 2023 future year projections were used for this analysis. The Project's emissions were tagged for treatment by the source apportionment tools in CAMx to obtain the incremental ozone and $PM_{2.5}$ concentration impacts due to the Project's emissions. More details and inputs for the PGM modeling are included in **Appendix B.**

EPA's BenMAP[12, 13] program was used to estimate the health impacts of the Project's contribution to ozone and $PM_{2.5}$ concentration produced by the CAMx source apportionment modeling. BenMAP uses the concentration estimates along with population and health effect concentration-response (C-R) functions to estimate various health effects of the concentration increases. BenMAP has a wide history of applications by EPA and others, including for local-scale analysis[14] as needed for assessing the health impacts of a Project's emissions. We used the EPA default BenMAP health effects C-R functions that are typically used in national rulemaking, such as the health effects impact assessment[15] for the 2012 $PM_{2.5}$ NAAQS. The health effects that we used for $PM_{2.5}$ include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory) and hospital admissions (respiratory). Details on the BenMAP inputs and outputs and definitions for the health outcomes are shown in **Appendix C.**

RESULTS

$PM_{2.5}$-related health outcomes included less than one additional incidence per year of construction of asthma-related emergency room visits (0.083 incidences), asthma-related hospital admissions (0.0068), all cardiovascular-related hospital admissions (not including myocardial infarctions) (0.015), all respiratory-related hospital admissions (0.033), mortality (0.16), and nonfatal acute myocardial infarction (lower than 0.0082 for all age groups).

Ozone-related health outcomes included less than one additional incidence per year of construction of all respiratory-related hospital admissions (0.022 incidences), mortality (0.011), and asthma-related emergency room visits for any age range (lower than 0.15 for all age groups).

For all these health endpoints, the number of estimated incidences is less than 0.00027% of the baseline number of incidences. The "baseline incidence" is the actual incidence of health effects as measured in the

[12] https://www.epa.gov/benmap/how-benmap-ce-estimates-health-and-economic-effects-air-pollution.

[13] https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf.

[14] https://www.epa.gov/benmap/benmap-ce-applications-articles-and-presentations#local.

[15] https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf.

local population in the absence of additional emissions from the project. When taken into context, the very small increase in incidences and the infinitesimally small percent of the number of background incidences indicate that these health impacts are negligible.

The results are approximate and conservative. The uncertainty in the results is due to the combination of the uncertainty of the increase in concentration resulting from the PGM and the uncertainty of the C-R increase estimate. In addition, the health impacts estimated using this method presumes that impacts seen at large concentration differences can be linearly scaled down to small increases in concentration. This methodology of linearly scaling impacts is broadly accepted for use in regulatory evaluations and is considered as being health protective because one may not see any increase in health impacts small increases in concentration.[16] Thus, these health impacts are conservatively estimated, and the actual impacts may be zero.

CLOSING

Please let us know if you need any additional information on this analysis.

Sincerely,

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Appendices:

A: Emissions Inventory, Spatial Allocation, and Smoke Setup

B: PGM Inputs, Outputs, and Assumptions

C: Benmap and Health Outcomes

[16] US EPA (2010). Quantitative Risk Assessment for Particulate Matter – Final Report. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-452/R- 10-005. June 2010. Available: https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf

APPENDIX A

EMISSIONS INVENTORY, SPATIAL ALLOCATION, AND SMOKE SETUP
DAGGETT SOLAR FACILITY
DAGGETT, CALIFORNIA

1. INTRODUCTION

Construction mobile emissions from the Project were estimated using methodologies consistent with CalEEMod® and Project-specific data, where available. The model employs widely accepted calculation methodologies for emission estimates combined with appropriate default data if site-specific information is not available.

Annual emission estimates from CalEEMod® need to be spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modeling. The Sparse Matrix Operating Kernel Emissions (SMOKE) emissions modeling system (Coats, 1996; Coats and Houyoux, 1996)[1] is used for this process.

Development of the gridded Project emissions is described in detail in Section 2.

2. PROJECT EMISSIONS AND SPATIAL ALLOCATION

Emissions were estimated for the Project to support the photochemical grid model (PGM) and are allocated into 4 km x 4 km grid cells. This section describes those emissions and how they were spatially allocated.

2.1 Project Emissions and Spatial Allocation

For use in PGMs, emissions must be spatially allocated over the area so that they can be incorporated into the gridded emission inventory. The total incremental emission inventory for the project is below in **Table 2-1**. Mobile source emissions were split into exhaust, brakewear, and tirewear based on the EMFAC2017 emission rates. $PM_{2.5}$ emissions are used in the modelling; PM_{10} emissions are presented for information below.

Table 2-1. Maximum Daily Construction Criteria Air Pollutant Emissions Estimates

Emission Category	ROG	NOx	PM10	PM2.5	SOx	CO
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Mobile	2.0	50	4.5	4.4	0.18	21
Exhaust	2.0	50	0.33	0.32	0.18	21
Brakewear			3.1	3.0		
Tirewear			1.1	1.1		

Mobile emissions include haul trucks and employee vehicles. Project emissions are allocated evenly across the project site into 4 km x 4 km grid cells for the PGM. **Figure 2-1** below shows the Project boundary overlay with the 4-km grid.

[1] https://www.cmascenter.org/smoke/

Figure 2-1. Overlap of Model Grid Cells on Project Site



2.2 Convert Project Inventories to SMOKE Input Format

The first step in the emissions processing was to convert the Project emission inventory into the Flat File 2010 (FF10) format for input to SMOKE. We assigned appropriate Source Classification Codes (SCCs) to the Project emissions sources. This was a crucial step in the emissions processing to properly characterize the Project-related sources. We used SCCs consistent with the BAAQMD's emissions modeling system to leverage on speciation and temporal data from BAAQMD. **Table 2-2** provides SCC assigned to each project source.

Table 2-2. Assigned SCC to Project Emission Sources

Emission Source	SCC	SCC Desc
Equipment	2270002000	Mobile Sources; Off-highway Vehicle Diesel; Construction and Mining Equipment; Total
Haul Trucks - HHDT - DSL - RUNEX	223007311X	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Exhaust
Haul Trucks - HHDT - DSL - PMBW	223007311B	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Brake Wear
Haul Trucks - HHDT - DSL - PMTW	223007311T	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Tire Wear
Employee Vehicles - LDA - GAS - RUNEX	220100111X	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV); Rural Interstate: Exhaust
Employee Vehicles - LDA - GAS - PMBW	220100111B	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV); Rural Interstate: Brake Wear
Employee Vehicles - LDA - GAS - PMTW	220100111T	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV); Rural Interstate: Tire Wear
Employee Vehicles - LDT1 - GAS - RUNEX	220102011X	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5); Rural Interstate: Exhaust
Employee Vehicles - LDT1 - GAS - PMBW	220102011B	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5); Rural Interstate: Brake Wear
Employee Vehicles - LDT1 - GAS - PMTW	220102011T	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5); Rural Interstate: Tire Wear
Employee Vehicles - LDT1 - DSL - RUNEX	223006011X	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Trucks 1 thru 4 (M6) (LDDT); Rural Interstate: Exhaust
Employee Vehicles - LDT1 - DSL - PMBW	223006011B	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Trucks 1 thru 4 (M6) (LDDT); Rural Interstate: Brake Wear
Employee Vehicles - LDT1 - DSL - PMTW	223006011T	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Trucks 1 thru 4 (M6) (LDDT); Rural Interstate: Tire Wear

Emission Source	SCC	SCC Desc
Fugitive Dust	2294000000	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives

2.2.1 Generate Spatial Surrogates for 4-km Domains

The Project source emissions need to be spatially allocated to appropriate geographic locations. The emissions can be allocated to modeling grid cells using gridding surrogates. To process the Project emissions, project area based spatial surrogate was developed. The surrogate was developed using US EPA's Spatial Allocation Tool[2] which combines GIS-based data (shapefiles) and modeling domain definitions to generate the appropriate gridded surrogate data set. The Project sources were then assigned specific surrogates for gridding by cross-referencing SCCs. As mentioned above, all the project emissions were distributed in the modeling grid cells where the Project is located as shown in **Figure 2-1**.

2.2.2 SMOKE 4 km Processing of Project Emissions

SMOKE system was used to process emissions for the Southern California 4-km modeling grid shown in Figure 2-1. A representative week from each month (seven days a month) was used to represent the entire month's emissions. Holidays were modeled separately as if they were a Sunday. SMOKE was applied to perform following tasks:

1. Chemical Speciation: Emission estimates of criteria air pollutants were speciated for the SAPRC07 AERO6 chemical mechanism employed in CMAQ in SMOKE processing. We used speciation profiles compatible with the SAPRC07 AERO6 mechanism from the BAAQMD's modeling system to be consistent with the regional modeling emissions. We then converted those emissions into CAMx-ready formats using CMAQ2CAMx conversion program and species mapping.
2. Temporal Allocation: Annual emission estimates were resolved on an hourly timescale for CAMx modeling. These allocations were determined from the particular source category, specified by the SCC. Monthly, weekly, and diurnal profiles were cross-referenced to SCC to provide the appropriate temporal resolution. The temporal profiles were also obtained from the BAAQMD's emissions modeling system.
3. Spatial Allocation: The Project emission estimates were spatially resolved to the grid cells for modeling using spatial surrogates as described above.

2.2.3 QA/QC of Emissions Modeling

Standard quality assurance/quality control (QA/QC) was conducted during all aspects of the SMOKE emissions processing. These steps followed the approach recommended in US EPA modeling guidance (EPA, 2007). SMOKE includes quality assurance (QA) and reporting features to keep track of the adjustments at each processing stage and ensure that data integrity is not compromised. We carefully reviewed the SMOKE log files for error messages and ensured that appropriate source profiles were used. All error records reported during processing were reviewed and resolved. This is important to ensure that source categories are correctly characterized. We also compared SMOKE input and output emissions. Summary tables were generated to compare input inventory totals against model-ready output totals to confirm consistency. Spatial plots were generated to visually verify correct spatial allocation of the emissions.

[2] https://www.cmascenter.org/sa-tools/documentation/4.2/html/srgtool/SurrogateToolUserGuide_4_2.pdf

2.2.4 Merge SMOKE Pre-merged Emissions to Generate CAMx-ready Emission Inputs

The final step in the emissions processing is to merge the Project gridded emissions with other regional components through the gridded merge program (MRGUAM) for CAMx. We merged the daily emissions in the time format required by CAMx.

2.2.5 Emissions Summary

Summaries of the Project gridded CAMx model-ready emissions data are provided in this section. **Table 2-3** summarizes the Project emission inventory data input to SMOKE from the FF10 data files in pounds per day by source type. **Table 2-4** presents the emissions data after SMOKE processing. The consistency in data in Tables 2-3 and 2-4 offer confidence in the correct operation of the SMOKE emissions processing for CAMx.

Table 2-3. Project emission inventory data input to SMOKE by source type (lbs/day).

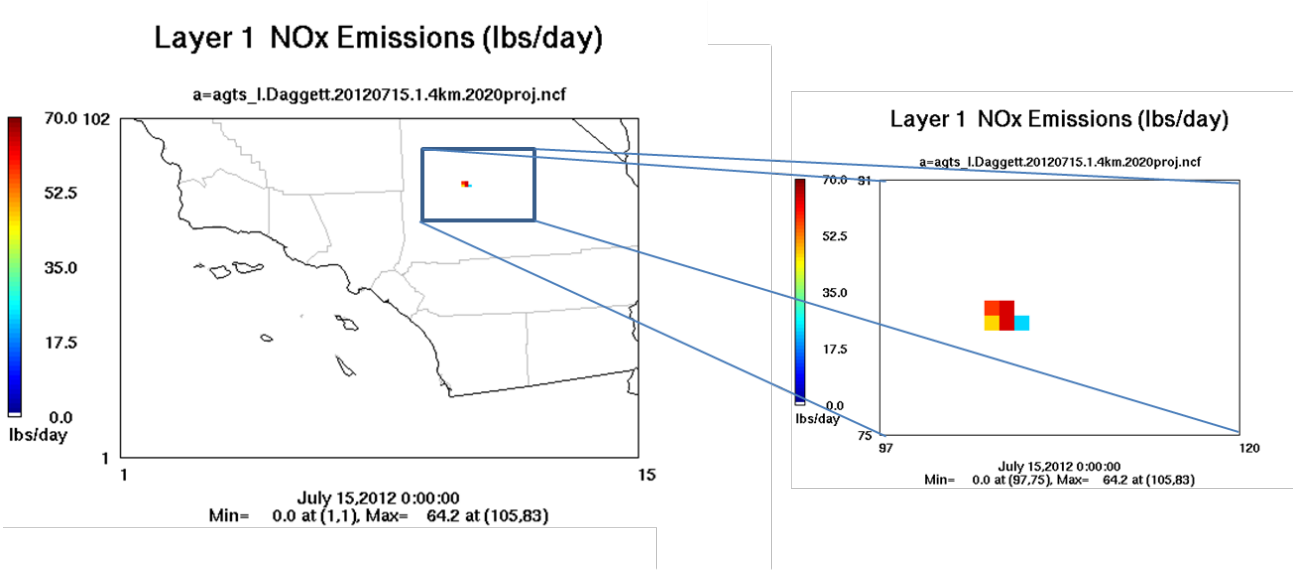
Type	CO	NOX	VOC	SO2	PM10	PM2_5
Employee Vehicles	14.6	2.2	0.4	0.0	1.8	1.7
Haul Trucks	6.3	48.0	1.6	0.1	2.7	2.6
Equipment	6.2	97.6	5.5	0.2	0.6	0.6
Fugitive Dust	0.0	0.0	0.0	0.0	400.0	84.0
Total	**27.2**	**147.8**	**7.5**	**0.4**	**405.1**	**89.0**

Table 2-4. Emission inventory data output from SMOKE by Project region (lbs/day).

Type	CO	NOX	VOC	SO2	PM10	PM2_5
Employee Vehicles	14.6	2.2	0.4	0.0	1.8	1.7
Haul Trucks	6.3	48.0	1.6	0.1	2.7	2.6
Equipment	6.2	97.6	5.5	0.2	0.6	0.6
Fugitive Dust	0.0	0.0	0.0	0.0	400.0	84.0
Total	**27.2**	**147.8**	**7.5**	**0.4**	**405.1**	**89.0**

Spatial displays of the gridded NO_x emissions data are presented below. We examined the gridded emissions in 4-km grid to verify accurate spatial allocation by SMOKE. **Figure 2-2** displays gridded NO_x emissions for the Project inventory in the 4-km modeling grid.

Figure 2-2. Spatial distribution of NO_x emissions (in lbs/day) for the Project in the Southern California 4-km domain



3. REFERENCES

/1/ Coats Jr., C.J., 1996. High-performance algorithms in the Sparse Matrix Operator Kernel Emissions (SMOKE) modeling system. Proc. Ninth AMS Joint Conference on Applications of Air Pollution Meteorology with AWMA. Amer. Meteor. Soc., Atlanta, GA, 584-588.

/2/ Coats Jr., C.J., Houyoux, M.R., 1996. Fast Emissions Modeling with the Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling System. The Emission Inventory: Key to Planning, Permits, Compliance, and Reporting, Air & Waste Management Association. New Orleans, Louisiana.

/3/ EPA, 2007. Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5 and Regional Haze. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-454/B-07-002.

APPENDIX B

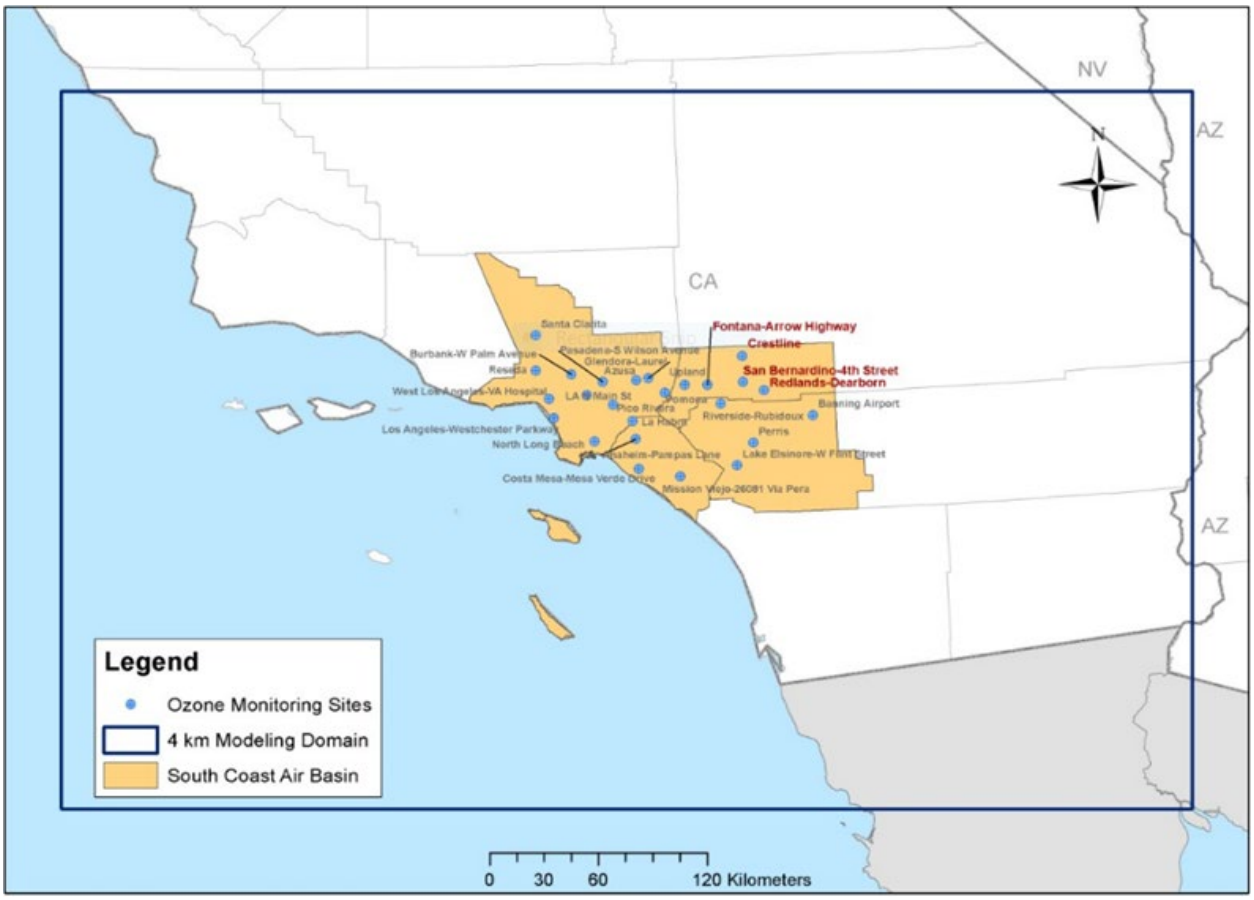
PGM INPUTS, OUTPUTS, AND ASSUMPTIONS
DAGGETT SOLAR FACILITY
DAGGETT, CALIFORNIA

1. REGIONAL AIR QUALITY MODELING PLATFORM

The Southern California 2012 4-km CAMx modeling database and a projected 2023 emissions database were used in this assessment. The 2012 base case is based on a Photochemical Grid Model (PGM) database developed by the South Coast Air Quality Management District (SCAQMD) as part of the modeling and attainment demonstration for their 2016 Air Quality Management Plan[1]. This PGM database is tailored for Southern California and reflects updated emissions estimates, new technical information and enhanced air quality modeling techniques. The database uses a high-resolution 4-km horizontal grid to better simulate meteorology and air quality in the complex terrain and coastal environment of California. This contrasts with EPA's national modeling platforms[2] used for national rulemakings (e.g., transport rules such as CSAPR[3] or defining new NAAQS) that use a coarser 12-km horizontal grid resolution.

Details of the model inputs, configuration, and results are presented in Section 2 of this Appendix.

Figure 1-1. Air quality modeling domain for Southern California[4]



[1] http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp
[2] https://www.epa.gov/air-emissions-modeling/2014-2016-version-7-air-emissions-modeling-platforms
[3] https://www.epa.gov/csapr
[4] https://ww3.arb.ca.gov/research/cabots/docs/9a-cabots-baaqmd-20170419.pdf

2. REGIONAL GRID MODELING

In this section, we describe the regional PGM modeling setup to assess impact of the Project emissions on the ambient $PM_{2.5}$ levels in the region. The 2012 base case modeling databases were developed by the SCAQMD for the Community Multiscale Air Quality (CMAQ) PGM. The CMAQ annual 2012 4-km modeling database and annual 2012 4-km WRF meteorological model output files were obtained from the SCAQMD. The SCAQMD CMAQ and WRF 2012 4-km data were then processed to generate a 2012 4-km annual PGM modeling database suitable for the Comprehensive Air Quality Model with extensions (CAMx). The following paragraphs describe how Ramboll developed the CAMx 2012 4-km annual database used in this study starting with the SCAQMD CMAQ and WRF 2012 4-km data.

2.1 Model Inputs and Configuration

The SCAQMD emissions database has both 2012 and 2023 future year projections for CMAQ area and in-line point emissions. Ramboll converted both years' emissions to corresponding CAMx area and point-source emissions files using the CMAQ2CAMx interface program[5]. Sea salt emissions were developed using an emissions processor that integrates published sea spray flux algorithms to estimate sea salt PM emissions for input to CAMx. The CAMx sea salt emissions were then merged with area emissions files.

The most commonly used prognostic meteorological models to provide meteorological fields for air quality modeling are the Weather Research and Forecasting (WRF) model (Skamarock et al., 2005) and the Fifth-Generation Mesoscale Model (MM5; Grell et al, 1994). MM5 is a nonhydrostatic, prognostic meteorological model developed in the 1970s by Pennsylvania State University and the National Center for Atmospheric Research (NCAR) and has been widely used for urban- and regional-scale photochemical, fine particulate, and regional haze regulatory modeling studies. However, development of MM5 ceased in 2006, and WRF has become the new standard model used in place of the older MM5 for regulatory air quality applications in the US. Developed jointly by NCAR and the National Center for Environmental Prediction in late 1990s, WRF has been under continuous development, improvement, testing and open peer-review for more than 10 years and used world-wide by hundreds of researchers and practitioners around the globe for a variety of mesoscale studies. SCAQMD adopted WRF version 3.6 for the 2012 simulations. For the current application, the meteorology remains unchanged for the future year simulation and SCAQMD WRF 2012 4-km model outputs were processed using the WRFCAMx[6] processor to generate the meteorological fields ready for CAMx. The WRF model employs a terrain-following coordinate system defined by pressure, using multiple layers that extend from the surface to 50 millibars (approximately 19 kilometers above ground level [AGL]). A layer averaging scheme is adopted for CAMx simulations to reduce the computational burden. **Table 2-1** presents the mapping from the WRF vertical layer structure to the CAMx vertical layers.

[5] http://www.camx.com/download/support-software.aspx.

[6] WRFCAMx is available on the CAMx website (http://www.camx.com/download/support-software.aspx)

Table 2-1 Vertical layer structure for WRF and CAMx modeling.

WRF		CAMx			
Layer	**Height (m)**	**Layer**	**Height (m)**	**Thickness (m)**	**Sigma**
30	19260	18	19260	4769	0.0000
29	17456				
28	15900				
27	14492	17	14492	6027	0.0788
26	13185				
25	11945				
24	10755				
23	9597				
22	8465	16	8465	4906	0.2930
21	7345				
20	6237				
19	5177				
18	4295				
17	3559	15	3559	1560	0.6254
16	2944				
15	2430				
14	1999	14	1999	358	0.7733
13	1641	13	1641	300	0.8107
12	1341	12	1341	251	0.8431
11	1090	11	1090	209	0.8709
10	881	10	881	175	0.8946
9	706	9	706	146	0.9148
8	561	8	561	121	0.9319
7	439	7	439	101	0.9463
6	338	6	338	85	0.9585
5	253	5	253	70	0.9688
4	183	4	183	59	0.9774
3	124	3	124	49	0.9846
2	75	2	75	41	0.9907
1	34	1	34	34	0.9958
0	0		0	0	1

The SCAQMD provided the lateral boundary conditions (BCs) for the 4-km state-wide modeling grid. The SCAQMD simulated a 12-km domain whose boundary concentrations were extracted from a global model simulation for the year 2012. The Model for Ozone and Related Chemical Tracers Version 4 (MOZART-4; Emmons et al., 2010) is a global chemical transport model developed jointly by NCAR,

the Geophysical Fluid Dynamics Laboratory, and the Max Planck Institute for Meteorology, and simulates chemistry and transport of tropospheric gases and bulk aerosols. The 12-km outputs were saved and used to derive the boundary conditions for the 4-km domain. The CMAQ2CAMX processor was used to convert the CMAQ 4-km boundary conditions to suitable CAMx BCs. The model was initialized from clean initial concentrations and five days of spin-up period were used for the 4-km grids to minimize their influence.

Additional data used in the air quality modeling include ozone column data from the Ozone Monitoring Instrument (OMI) which continues the Total Ozone Mapping Spectrometer (TOMS) record for total ozone and other atmospheric parameters related to ozone chemistry (OMI officially replaced the TOMS ozone column satellite data on January 1, 2006). OMI data are available every 24-hours and are obtained from the TOMS ftp site[7]. The CAMx O3MAP program reads the OMI ozone column txt file data and interpolates to fill gaps and generated gridded daily ozone column input data. The OMI data is used in the CAMx (TUV) radiation models which is a radiative transfer model that develops clear-sky photolysis rate inputs for CAMx. The land use file was generated with the WRFCAMx processor and modified to remove lakes and set coastal waters with a surf zone width of 50 m, this file was used to update the emissions database and provide more realistic representation of sea salt emissions.

Table 2-2 presents the CAMx configuration used for the modeling in this project. In the past, the Carbon-Bond IV (CB4) chemical mechanism (Gery et al., 1989) has been predominantly used for the California SIP modeling. In 1999, however, CARB's Reactivity Scientific Advisory Committee recommended switching to the 1999 State-wide Air Pollution Research Center (SAPRC99) chemical mechanism (Carter, 2000) based on a comprehensive review by Stockwell (1999), and SAPRC99 has since been the mechanism of choice for the California SIPs. The 2007 update to the SAPRC chemistry mechanism, called SAPRC07 (Carter, 2010), replaced the dated SAPRC99 mechanism. The version implemented in CAMx is SAPRC07TC, which includes additional model species to explicitly represent selected toxics and reactive organic compounds and uses numerical expressions of rate constants that are compatible with the current chemistry mechanism solver. The partitioning of inorganic aerosol constituents (sulfate, nitrate ammonium and chloride) between gas and aerosol phases is performed using the ISORROPIA module. The SOAP semi-volatile equilibrium scheme performs the organic aerosol-gas partitioning. These processes are described in more detailed in the CAMx user guide.

[7] ftp://toms.gsfc.nasa.gov/pub/omi/data/

Table 2-2. CAMx modeling configuration.

Science Option	Configuration	Notes
Model Code	CAMx v6.5	Released June 2010
Horizontal Grid	4-km 1-way nesting	
O3 and PM 4-km	156 x 102 grid cells	
Vertical Grid	18 vertical layers extending up to ~19 km AGL	Collapsed from 30 WRF layers (see Table 3-1)
Initial Conditions	Clean initial conditions	5-day spin-up for 4-km domain
Boundary Conditions	CMAQ 4km lateral concentrations converted to CAMx	
Photolysis Rate	Photolysis rates lookup table	Derived from satellite measurements and TUV processor
Gas-phase Chemistry	SAPRC07TC	Solved by the Euler Backward Iterative (EBI) solver
Aerosol-phase Chemistry	ISORROPIA (inorganic aerosol) SOAP v2.1 (organic aerosol)	
Meteorological Input Preprocessor	WRFCAMx v4.7	
Advection	Piecewise Parabolic Method (PPM)	
Diffusion	Eddy diffusion algorithm	

2.2 Model Results

The future modeling scenario was simulated using the CAMx source apportionment technology. Both cumulative concentrations from all the sources and the concentrations from project specific emissions are derived from a single simulation following the previous section model configuration. The model results of hourly $PM_{2.5}$ concentrations were processed into aggregated metrics that are relevant to health effects.

The metrics relevant to the $PM_{2.5}$ health effects selected in this study are 24-hour annual average concentrations. **Figure 2-1** shows spatial plots of annual average and a single day episode maximum 24-hour average $PM_{2.5}$ concentrations from the base case. In the base case, the Los Angeles County is the region most impacted along with the southern portion of Imperial County. Annual $PM_{2.5}$ concentrations in these counties range between 10 and 20 $\mu g/m^3$ with isolated regions that could reach up to 25 $\mu g/m^3$. Contributions of the Project emissions to annual average $PM_{2.5}$ are about 0.11 $\mu g/m^3$ at the most impacted areas and contributions to the maximum 24-hour average are less than 0.4 $\mu g/m^3$ at the most impacted areas. **Figure 2-2** presents increases in quarterly average and maximum 24-hour average $PM_{2.5}$ due to the Project by $PM_{2.5}$ component at the grid cell of maximum

impact. It confirms that the $PM_{2.5}$ increases due to the Project are mostly due to primary PM components.

Figure 2-1. $PM_{2.5}$ concentrations from the base case scenario (left panels); increases in $PM_{2.5}$ due to the Project (center and right panels); top panels for annual averages, and bottom panels for episode maximum 24-hour averages; results of the 4 km $PM_{2.5}$ modeling domain are shown.

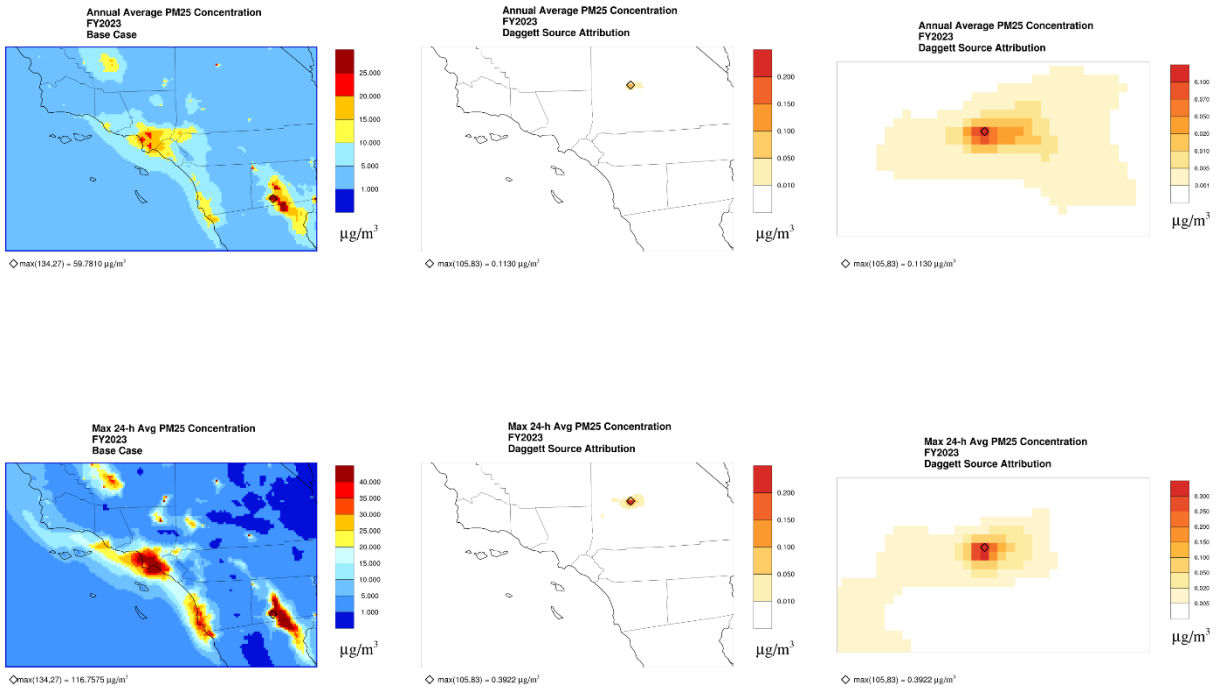
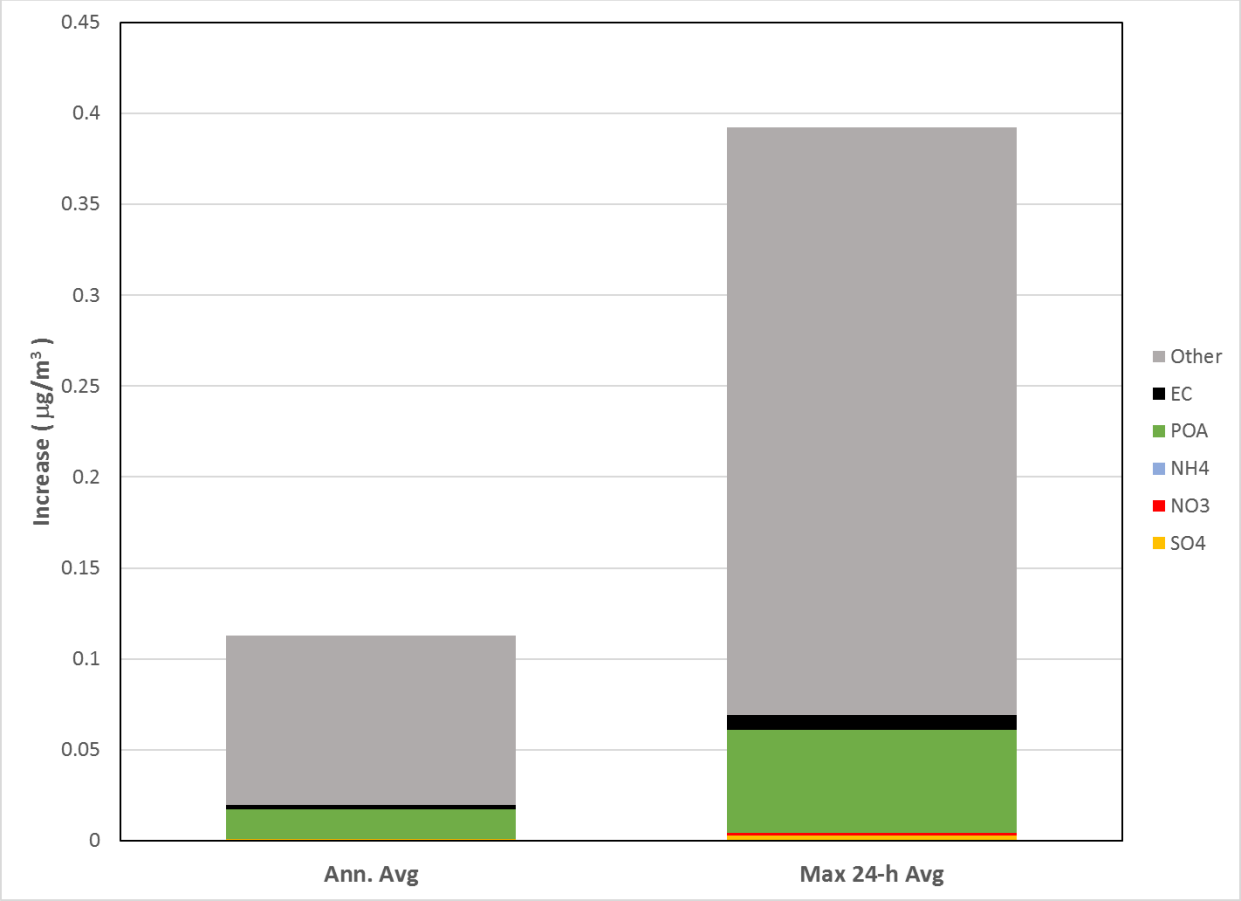


Figure 2-2. Increases in quarterly average and episode maximum 24-hour average $PM_{2.5}$ concentrations due to the Project by $PM_{2.5}$ component: fine particulate sulfate (SO4), nitrate (NO3), ammonium (NH4), primary organic aerosol (POA), elemental carbon (EC), and other primary PM (Other); where the maximum impact of the Project's emissions occurred



The metrics relevant to the ozone health effects selected in this study are consistent with the ozone NAAQS. The model provides hourly concentrations that are further post-processed to produce maximum daily average 8-hour (MDA8) ozone concentrations for each day. **Figure 2-3** displays spatial plots of the annual highest MDA8 ozone for the 2023 emissions scenario and the increases in highest MDA8 ozone concentrations due to the Projects emissions. In the 2023 base case emissions scenario, the western Los Angeles, northern Orange, southern San Bernardino and eastern Riverside counties show the highest MDA8 ozone concentration between 90 and 100 ppb. The maximum increase in the highest MDA8 ozone concentrations due to the Project is 0.075 ppb in and occurs in western San Bernardino County.

Figure 2-4 displays MDA8 ozone for the base case and increases in MDA8 ozone due to the project on July 10th, the day that the Project has the highest ozone contribution. The highest MDA8 ozone contribution due to the Project is 0.223 ppb (Figure 2-4, right) that occurs in western San Bernardino County where total MDA8 ozone concentrations are below 60 ppb.

Figure 2-3. Highest MDA8 ozone concentrations from the base case scenario (left) and increases in highest MDA8 ozone concentrations due to the Project (right) for the annual modeling of the 2023 emissions scenario.

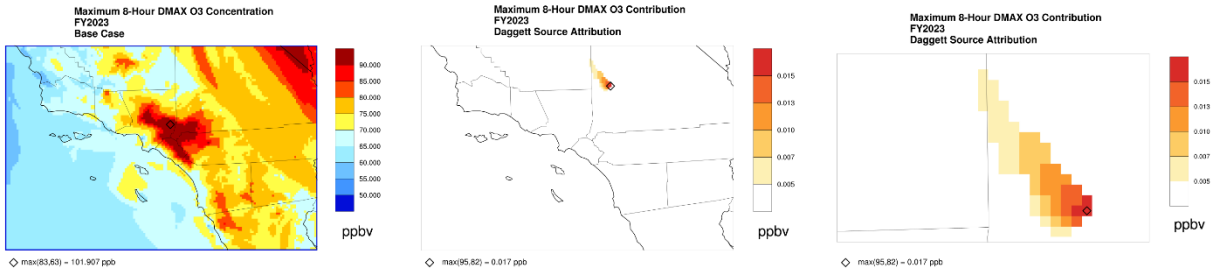
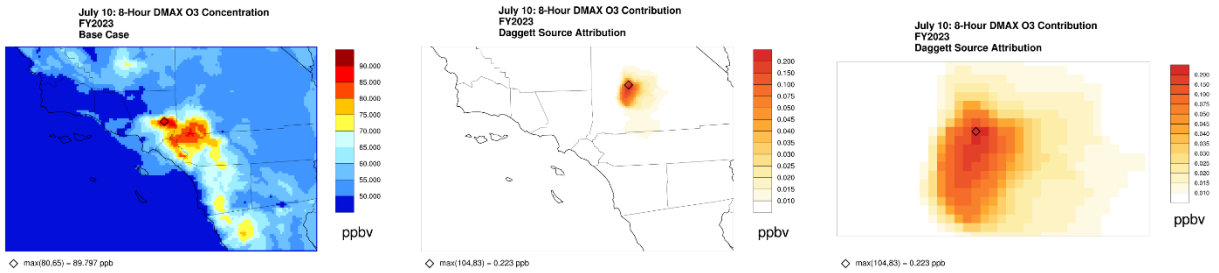


Figure 2-4. MDA8 ozone concentrations from the base case scenario (left) and increases in MDA8 ozone concentrations due to the Project (right) on July 10, the day with the highest Project ozone contributions for the annual modeling of the 2023 emissions scenario.



3. REFERENCES

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APPENDIX C

BENMAP AND HEALTH OUTCOMES
DAGGETT SOLAR FACILITY
DAGGETT, CALIFORNIA

1. HEALTH IMPACT ANALYSIS

The potential health effects of ozone and $PM_{2.5}$ concentrations due to the Project's emissions were estimated using the Environmental Benefits Mapping and Analysis Program (BenMAP), Community Edition v1.4 (July 2018).[1] BenMAP, originally developed by USEPA, is a powerful and flexible tool that helps users estimate human health impacts and economic benefits resulted from changes in air quality. BenMAP outputs include PM- and ozone-related health endpoints such as premature mortality, hospital admissions, and emergency room visits. BenMAP uses the following formula to relate changes in ambient air pollution to certain health endpoints (AAI, 2018):

Health Effect = Air Quality Change × Health Effect Estimate × Exposed Population × Background Health Incidence

- Air Quality Change - The difference between the starting air pollution level (the base) and the air pollution level after some change, such as a new source.
- Health Effect Estimate - An estimate of the percentage change in an adverse health effect due to a one unit change in ambient air pollution. Effect estimates, also referred to as concentration-response functions (CRFs), are obtained from epidemiological studies.
- Exposed Population - The number of people affected by the air quality change. The government census office is a good source for this information. This analysis uses data from PopGrid, which is an add-on program to BenMAP that allocates the 2010 block-level U.S. Census population to a user-defined grid.[2]
- Background Health Incidence - An estimate of the average number of people that die (or suffer from some adverse health effect) in a given population over a given period of time. For example, the health incidence rate might be the probability that a person will die in a given year. Health incidence rates and other health data are typically collected by the government as well as the World Health Organization.

The health endpoints analyzed in this study and the BenMAP results are presented in Section 2 of this appendix.

2. HEALTH IMPACT ANALYSIS

This section presents the health impact of the Project emissions on the population in the southern California domain, estimated by the BenMAP model. The CAMx modeling results are processed to generate aggregated daily average $PM_{2.5}$ and maximum daily 8-hour ozone appropriate for various health endpoints. The CAMx simulation results from the full year (January to December) are used to estimate the health effects of $PM_{2.5}$ and ozone. BenMAP translates increases in the pollutant concentration due to the Project emissions to changes in the incidence rate for each health effect using a concentration-response function (CRF) derived from previously published epidemiological studies. BenMAP often provides multiple CRFs based on different epidemiological studies for a given health endpoint. We used the USEPA default CRFs when evaluating health impacts. This analysis uses population data from PopGrid, which allocates the census population to each modeled 4x4km grid cell.

[1] http://www.epa.gov/air/benmap/

[2] https://www.epa.gov/benmap/benmap-community-edition

2.1 $PM_{2.5}$ Health Impact

Although there are a large number of potential health endpoints that could be included in the analysis as described above, we selected the key health endpoints that have been the focus of recent EPA risk assessments (e.g., US EPA, 2010; US EPA, 2014). For example, EPA notes that health endpoints were selected based on consideration of at-risk populations (e.g. asthmatics), endpoints that have public health significance, and endpoints for which information is sufficient to support a quantitative concentration-response relationship (US EPA, 2014).

The health endpoints and associated CRFs examined in this study are presented in **Table 2-1**. Each CRF is based on a certain age range for the given health endpoint depending on the underlying epidemiological study on which it is based. Increases in the BenMAP-estimated health effect incidences and percent of background health incidence due to the Project emissions are presented in **Table 2-2.** These values reflect the total health impact in California across the Project domain.

Table 2-1. Summary of $PM_{2.5}$ health endpoints used in this study.

Health Endpoint	Age Range	Daily Metric	Seasonal Metric	Annual Metric	CRF Selected
Emergency Room Visits, Asthma	0-99	24-hr mean			Mar et al., 2010[1]
Mortality, All Cause	30-99	24-hr mean	Quarterly mean	Mean	Krewski et al., 2009[1]
Hospital Admissions, Asthma	0-64	24-hr mean	-	-	Sheppard, 2003[1]
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65-99	24-hr mean	-	-	Bell, 2012[1]
Hospital Admissions, All Respiratory	65-99	24-hr mean	-	-	Zanobetti et al., 2009[1]
Acute Myocardial Infarction, Nonfatal	18-24	24-hr mean	-	-	Zanobetti et al., 2009[1]
Acute Myocardial Infarction, Nonfatal	25-44	24-hr mean	-	-	
Acute Myocardial Infarction, Nonfatal	45-54	24-hr mean	-	-	
Acute Myocardial Infarction, Nonfatal	55-64	24-hr mean	-	-	
Acute Myocardial Infarction, Nonfatal	65-99	24-hr mean	-	-	

[1] CRFs available in BenMAP (AAI, 2018)

The results show that the highest impact is for all-cause mortality, with an estimated mean increased incidence of 0.16 deaths per year due to the project emissions. Much smaller mean increased incidences were estimated for other relevant $PM_{2.5}$-related health outcomes: 0.083 increase in incidence of asthma related emergency room visits, 0.033 increase in incidence of respiratory hospital admissions, and 0.015 increase in incidence of cardiovascular hospital admissions.

It should be noted, however, that the estimated increased incidence in those health effects are quite minor compared to the background health incidence values (shown in **Table 2-2** as percent of Background Health Incidence). For example, for mortality, the increase of less than one death per year due to project emissions represents 0.000067% of the total all-cause mortality for people ages 30 to 99.

Table 2-2. BenMAP-estimated mean $PM_{2.5}$ health effects of the Project emissions across the southern California domain.[1]

Health Endpoint[2]	Incidences (Mean)	Percent of Background Health Incidence (%)
Emergency Room Visits, Asthma [0-99]	0.083	0.000068%
Mortality, All Cause [30-99]	0.16	0.000067%
Hospital Admissions, Asthma [0-64]	0.0068	0.000040%
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.015	0.0000093%
Hospital Admissions, All Respiratory [65-99]	0.033	0.000024%
Acute Myocardial Infarction, Nonfatal [18-24]	0.0000087	0.000025%
Acute Myocardial Infarction, Nonfatal [25-44]	0.00049	0.000027%
Acute Myocardial Infarction, Nonfatal [45-54]	0.0013	0.000028%
Acute Myocardial Infarction, Nonfatal [55-64]	0.0027	0.000028%
Acute Myocardial Infarction, Nonfatal [65-99]	0.0082	0.000028%

[1] Health effects are shown terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences) values.

[2] Affected age ranges are shown in square brackets.

2.2 Ozone Health Impact

As noted above, although a larger number of health endpoints could be evaluated, we selected the health endpoints based on recent EPA risk assessments (US EPA, 2010; US EPA, 2014). The health endpoints and associated CRFs examined in this study are presented in **Table 2-3.** Each CRF is associated with a certain age range for the given health endpoint depending on the epidemiological study on which it is based. Increases in the BenMAP-estimated health effect incidences and percent of background health incidence due to the Project emissions are presented in **Table 2-4.** These values reflect the total health impact in California across the Project domain.

Table 2-3. Summary of ozone health endpoints used in this study.

Health Endpoint	Age Range	Daily Metric	Seasonal Metric	Annual Metric	CRF Selected
Hospital Admissions, All Respiratory	65 - 99	MDA8	-	-	Katsouyanni et al., 2009[1]
Mortality, Non-Accidental	0 - 99	MDA8	-	-	Smith et al., 2009[1]
Emergency Room Visits, Asthma	0 - 17	MDA8	-	-	Mar and Koenig, 2009[1]
Emergency Room Visits, Asthma	18 - 99	MDA8	-	-	Mar and Koenig, 2009[1]

[1] CRFs available in BenMAP (AAI, 2018)

For this project, asthma related emergency room visits are associated with the highest health impacts due to the project emissions in the southern California domain (0.15 increase for adults ages 18 to 99 and 0.13 increase for children ages 0 to 17). Hospital admissions due to respiratory issues for adults age 65-99 and non-accidental mortality have lower incidence increases (0.022 and 0.011 respectively).

It should be noted, however, that the estimated increases in those health effect incidences are quite minor compared to the background health incidence (shown in **Table 2-4** as percent of Background Health Incidence). For example, the increase in asthma emergency room visits represents 0.00027% of the total asthma-related emergency room visits for children.

Table 2-4. BenMAP-estimated mean ozone health effects of the Project emissions across the southern California domain.[1]

Health Endpoint[2]	Incidences (Mean)	Percent of Background Health Incidence (%)
Hospital Admissions, All Respiratory [65-99]	0.022	0.000016%
Mortality, Non-Accidental [0-99]	0.011	0.0000065%
Emergency Room Visits, Asthma [0-17]	0.13	0.00027%
Emergency Room Visits, Asthma [18-99]	0.15	0.00020%

[1] Health effects are shown terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences) values.

[2] Affected age ranges are shown in square brackets.

2.3 Conclusion

The $PM_{2.5}$ and ozone concentration changes modeled by CAMx were converted to impacts on various health endpoints including premature mortality, hospitalizations, and emergency room visits, using the BenMAP health impact assessment model and USEPA defaults for health endpoints. Estimated changes in the health effect incidences are presented across the California grids in the southern California domain. For the $PM_{2.5}$-related health endpoints, the health impact on mortality is the highest

(Incidence = 0.16). For ozone-related health endpoints, asthma related emergency room visits are most affected (Incidence = 0.15 for adults ages 18 to 99 and Incidence = 0.13 for children ages 0 to 17). Other health effect incidences are lower. Across the board, the estimated increases in those health effect incidences are quite minor compared to the background health incidence values with the largest $PM_{2.5}$ health impact (all-cause mortality) representing only 0.000067% of the total of all deaths, and the largest impact for ozone (asthma related emergency room visits by children) representing 0.00027% of all emergency room visits.

The estimated health impacts from the project are extremely low and represent only a very small fraction of the total background health incidence. Additionally, the increase in incidences is very low. When taken into context, the very small increase in incidences and the vanishingly small percent of the number of background incidences indicate that these health impacts are negligible.

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Appendix M:

Solar Power Installation Effects on Avionics

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June 3, 2019

Issue: Determine if power conversion equipment for large solar arrays proposed to be constructed near/around the Barstow-Daggett Airport will generate electrical noise that will potentially affect aircraft (fixed and rotor-wing) avionics. (Electrical noise is a generic term covering a wide range of frequencies, and includes Radio Frequency Interference (RFI), also sometimes referred to as Electromagnetic Interference (EMI).)

Background: Solar panels generate direct current (DC) power that must be converted to alternating current (AC) for use by commercial and consumer applications. Commonly, a power inverter system as large as several megawatts is used to perform this task, and both magnetic and electrical fields are produced in the process. In the U.S., the power created is 60 Hz (line frequency), characterized as extremely low frequency (ELF).

ELF currents create magnetic fields which decrease rapidly with distance from the conductors. As an example, for high voltage (e.g, 400 kV) towers/lines, studies recommend homes with continuous occupant exposure should be at least 150 meters away. This is a relatively small distance for the proposed installation, and in any case, magnetic fields themselves do not create electrical noise.

However in contrast to magnetic fields, higher-frequency electrical noise (e.g., RFI in the VHF and UHF frequency ranges, typically between 108 and 400 MHz for aircraft) caused by multiples or harmonics of power conversion switching circuits and transient electrical effects have the potential to affect reception of navigation and communications frequencies used in Air Traffic Control. Even higher frequencies such as L-band (1 to 2 GHz) could affect some avionics functions such as GPS or ADS-B reception, but it is very rare that any switching and transient electrical effects have frequency components this high, and their effects subside very rapidly with distances beyond a few tens or hundreds of wavelengths.

Analysis: The proposed power conversion system's circuitry enjoys numerous existing installations. The proposed installations in general are 800 feet or more from the closest points on the runways at the airport (identifier KDAG), and therefore magnetic effects are expected to be negligible to nearby aircraft.

The medium-voltage (typically under 2,000 volts) circuitry is completely enclosed within metal cabinets, including the dry transformer(s) used to convert solar panel voltages to the approximately 1500 volt level. The equipment has relevant certifications including those from the National Electric Code, Underwriter's Laboratory (UL), and the North American Electric Reliability Corporation (NERC). The collector and distribution power conductors are installed underground in Direct Earth Burial (DEB) cables.

RFI must be radiated by higher frequencies than the 60 Hz line frequency. Harmonic (multiples of the 60 Hz primary frequency) testing of the conversion equipment shows that higher frequency components in the resulting output current are under 5% of the 60 Hz current levels, for frequencies above the 25th harmonic or 1500 Hz - this frequency is nominally five orders of magnitude lower than those radio frequencies used for aircraft navigation and communications equipment. As a result, RFI radiation capable of affecting aircraft avionics is shown to be minimal.

External to the power conversion system, a large high-voltage transformer will increase the 60 Hz power to distribution voltage levels (e.g, 240 KV). This last voltage conversion is accomplished without using switching or electronics circuits by traditional transformer step-up action relying solely on magnetic coupling between windings without electronic noise generation.

Numerous solar array installations already exist near public and military airports. One example is Palmdale (identifier KPMD), where the arrays are approximately 5000' from the runway. However, helicopter approaches to a practice runway directly overfly the arrays at several hundred feet altitude with no known interference noted. Another is the Manchester Airport in New Hampshire (identifier KMHT), for which the solar installation is on the airport parking garage approximately 400-500' from the closest active ramps and taxiways, and approximately 1700' from the closest runway. A third example is San Diego International Airport (KSAN), where the array are mounted on the roofs of large aircraft hangars, only 100' from active aircraft ramps and about 1000' from Runway 27.

Conclusion: The proposed installation near Barstow airport presents minimal risk to operation of aircraft avionics due to radio frequency or electromagnetic interference.



L. Nelson Spohnheimer
Managing Partner

Appendix N:

Updated Grading Memorandum

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Clearway Energy Group
100 California Street, Floor 4
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clearwayenergygroup.com

Clearway

August 5, 2019

Tom Nievez
Contract Planner
San Bernardino County Land Use Services Department
385 N. Arrowhead Avenue
San Bernardino, CA 92415

Dear Mr. Nievez:

In November 2017, Daggett Solar Power Facility 1 LLC submitted an application for conditional use permits for the 650 MW solar photovoltaic and 450 MW battery storage facility located near Daggett, California. Pursuant to the California Environmental Quality Act, the County issued its Draft Environmental Impact Report (DEIR) in March 2019, and in that DEIR, described the proposed site preparation activities to be undertaken at the Daggett site, including a general estimate of proposed grading to be conducted. The purpose of this letter is to provide San Bernardino County with an updated grading volume estimate.

The estimate of grading included in the DEIR was based on preliminary engineering and assumed evenly distributed grading throughout the site. Based on updated engineering and current site preparation methods for solar projects, minimal grading is now expected; grading is anticipated primarily during construction of stormwater detention basins, elevated equipment pads in flood areas, underground trenching and site internal access roads. Based on this, the following revised grading estimates by phase is provided: Phase 1 - 200,000 cubic yards; Phase 2 - 200,000 cubic yards; Phase 3 - 150,000 cubic yards; and gen-tie - 10,000 cubic yards.

Should you have any questions, please do not hesitate to contact me at 415.627.1637 or at peter.todd@clearwayenergy.com.

Sincerely,

Peter Todd, PE
Sr. Development Engineer

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