Appendix A

Notice of Preparation
and
Environmental Initial Study

February 2024

Prepared for

City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, Ca 92277

Prepared by

Terra Nova Planning & Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, Ca 92211

and

Responses to Notice of Preparation

and

Public Scoping Meeting Written Comments
March 21, 2024

Notice of Preparation
and
Environmental Initial Study

February 2024

Notice of Preparation
and
Initial Study

E-Group PS Solar Project

General Plan Amendment GPA23-000001
General Plan Amendment GPA24-000001
Development Code Amendment DCA23-000016
Rezone REZ23-000001
Rezone REZ 24-000001
Conditional Use Permit CUP23-000009
Development Agreement 23-000001

Applicant:

E-Group PS, LLC
40764 Winchester Road, Suite 590
Temecula, CA 92591

Lead Agency:

City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277

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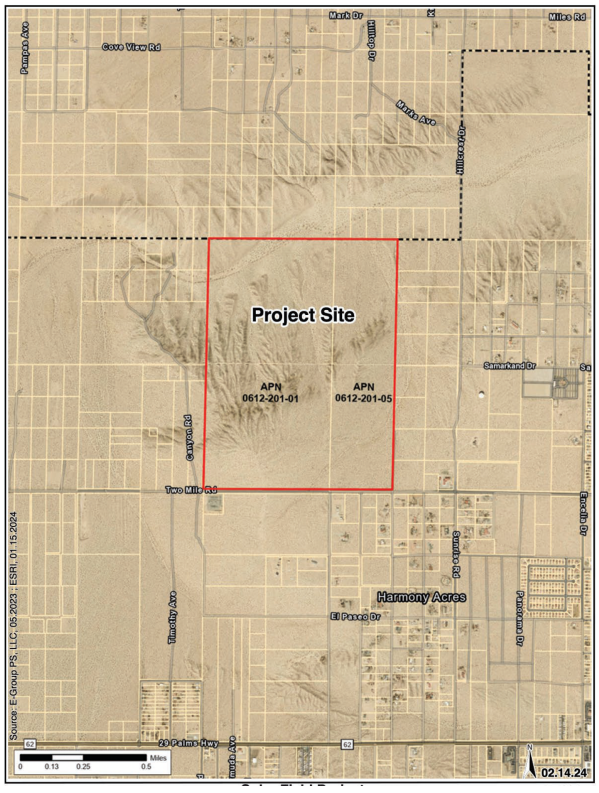
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CITY OF TWENTYNINE PALMS
NOTICE OF PREPARATION

E-GROUP PS SOLAR PROJECT
General Plan Amendment GPA23-000001
General Plan Amendment GPA 24-000001
Development Code Amendment DCA23-000016
Rezone REZ23-000001
Rezone REZ 24-000001
Conditional Use Permit CUP23-000009
Development Agreement 2023-000001

CONTACT PERSON: Keith Gardner, Community Development Director
Email: kgardner@29palms.org Phone: (760) 367-6799

PROJECT LOCATION: North of Two Mile Road and west of Noel Knolls Road. Assessor's Parcel Nos. 0612-201-01 and 0612-201-05.



PROJECT DESCRIPTION: The Project as a whole encompasses 477± acres, and will include two General Plan Amendments (GPA), two Rezones (REZ), a Development Code Amendment (DCA), a Conditional Use Permit (CUP), and a Development Agreement. The GPAs include 1) General Plan text and map amendments to add a new Renewable Energy land use district, and apply it to the northern 241 acres of the Project site on the Land Use Map, and 2) a General Plan map amendment to re-designate the southern 236 acres of the Project site from Rural Living (RL-5) and Single-Family Residential – Estate (RS-E) to Single-Family Residential, 1 acre minimum (RS-1). The REZs include 1) adding a new Renewable Energy district, which also requires a DCA to create development standards and permitted uses, and applying it to the northern 241 acres of the Project site on the Zoning Map, and 2) a Zoning Map amendment to re-designate the southern 236 acres of the Project site from RL-5 and RS-E to RS-1. The Conditional Use Permit is to allow the solar project to be constructed on the northern portion of the site. The Development Agreement is to address community benefit responsibilities of the applicant.

The applicant proposes the development of a commercial solar array on the northern 184± acres of a 477± acre site that is currently vacant, undeveloped land. The 184-acre solar array portion of the site is referred to herein as the "solar project." The solar project will have the ability to generate 50 megawatts (MW) of solar power. The solar project will include rows of 720 ground-mounted solar panel racks each 104 feet wide and 252 feet long, separated by 10 foot wide service/maintenance drives. In total, 160,000 solar panels will be installed on the site. The panels will be mounted on pilons, at a fixed 21 degree angle, facing south. A total of 170 inverters will be connected to the panels and consolidated throughout the project. Power generated by the Project

will be routed to on-site transformers, and then via an underground line routed to the existing Southern California Edison Carodean substation located on the south side of Two Mile Road, east of Canyon Road. The interconnection line will extend from the solar project's south boundary down a new driveway (north of the existing Easy Street) to Two Mile Road, then westerly on Two Mile Road to the substation. No residential development is proposed as part of the Project.

FINDINGS/DETERMINATION: The City has reviewed and considered the proposed Project in the Initial Study below, and has determined that potentially significant impacts could result from the proposed Project. Therefore, an Environmental Impact Report shall be prepared. Based on the location and characteristics of the proposed Project, the EIR will include analysis of potentially significant effects on the environment related to the following topics: Aesthetics, Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Tribal Cultural Resources, and Utilities/Service Systems.

PUBLIC REVIEW PERIOD: A 30-day public review period for the Notice of Preparation will commence on February 28, 2024 and end on March 29, 2024 for interested individuals and public agencies to submit written comments on the document. Any written comments on the Notice of Preparation must be received at the City address (6136 Adobe Road) or via email to Keith Gardner at kgardner@29palms.org within the public review period. Copies of the Notice of Preparation and Initial Study are available for review on the City's website at **29Palms.org.**

A public scoping meeting will be held for this project on March 21, 2024, at 5:00 PM, at Patriotic Hall, Luckie Park, 5882 Luckie Avenue, Twentynine Palms, CA.

Environmental Checklist Form

Project title: E-Group PS Solar Project, General Plan Amendment GPA23-000001, General Plan Amendment GPA24-000001, Development Code Amendment DCA23-000016, Rezone REZ23-000001, Rezone REZ24-000001, Conditional Use Permit CUP23-000009, and Development Agreement 23-000001	
Lead agency name and address:	City of Twentynine Palms 6136 Adobe Road Twentynine Palms, CA 92277
Contact person and phone number:	Keith Gardner, Community Development Director 760-367-6799 x 1008 kgardner@29palms.org
Project location:	North of Two Mile Road and west of Noels Knoll Road (extended). Assessor's Parcel Nos. 0612-201-05 and 0612-201-01.
Project sponsor's name and address:	Peter Bobro E-Group PS, LLC 40764 Winchester Road, Suite 590 Temecula, CA 92591
Existing General Plan designation: Existing: Rural Living (RL-5), Single-Family Residential – Estate (RS-E) Proposed: Renewable Energy (E), Single-Family Residential (RS-1)	Existing Zoning: Existing: Rural Living (RL-5), Single-Family Residential – Estate (RS-E) Proposed: Renewable Energy (E), Single-Family Residential (RS-1)

1. INTRODUCTION

The purpose of this Initial Study (IS) is to assess impacts resulting from the construction and operation of a commercial solar project as described below.

This document has been prepared pursuant to the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Sections 15000 et seq). The City of Twentynine Palms will serve as the lead agency for CEQA purposes.

1.1. Project Location

The Project site is located at the northwest corner of Two Mile Road and Noels Knoll Road (extended), in the northwestern portion of the City. (See Exhibits 1 through 4) The site consists of 477 acres identified as Assessor's Parcel Nos. 0612-201-01 and 0612-

201-05. The site is bordered by Two Mile Road on the south and unimproved future City streets, including Amboy Road on the north, Canyon Road on the west, and Noels Knoll Road on the east.

The Project will require both on-site and off-site improvements to connect to the electric grid. On-site improvements require the installation of a driveway and underground power lines, extending one-half mile south from the solar project to connect to the intersection of Two Mile Road north of Easy Street. Off-site improvements will extend the underground power lines westerly in Two Mile Road one-half mile to the existing Southern California Edison (SCE) Carodean substation.

1.2. Project Description

The applicant proposes the development of a commercial solar array on the northern 184 acres of the 477 acre site. The site is currently vacant, undeveloped land. The City's Land Use and Zoning Map designates the northern 360 acres as Rural Living (RL-5) and the southern 117 acres as Single-Family Residential – Estate (RS-E). In order to assure that there is no net loss in residential units, consistent with SB 330, the southern 236± acres will be re-designated to Single Family Residential – 1 acre minimum (RS-1) to assure that sufficient residential units can be built to offset the loss of units from the development of the solar project. There are no plans to build residential units at this time.

The solar project will have the ability to generate 50 megawatts (MW) of solar power. In addition to on-site improvements, the Project will require off-site improvements, as described below.

Project On-Site Improvements

The Project will result in the installation of 160,000 solar panels on the northern 184 acres of the site. The Project will include rows of 720 ground-mounted solar panel racks each 104 feet wide and 252 feet long, separated by 10 foot wide service/maintenance drives. The panels will be mounted on pilons, at a fixed 21 degree angle, facing south. (Exhibit 5, Site Plan) Each row of panels will be a minimum of 3 feet off the ground, and will be 6 to 7 feet tall. The pilons supporting each row will extend about 7 feet below ground. The panel racks will be interconnected with underground cabling, which will be installed in trenches and back-filled. The depth of these trenches is expected to be about 4 feet below grade.

A total of 170 inverters will be connected to the panels by cables, and consolidated on the panel racks. The inverters will be connected to an on-site pad-mounted transformer at the south-central boundary of the solar project. This transformer will convert the power generated by the Project to be compatible with the voltage in the SCE system.

The solar project will be crossed by 10 foot wide dirt service roads. At several locations, these roads will cross existing dry washes. For these crossings, pre-fabricated concrete-supported steel bridges will be installed above the wash. The perimeter of the site will be fenced, with one access gate at Samarkand Drive (extended), connecting to the driveway described above.

To connect to the power grid, the Project requires the installation of a driveway and underground power lines, extending one-half mile south from the solar project to connect to the intersection of Two Mile Road at Easy Street at the southern boundary of the Project site. (See "Project Off-Site Improvements," below, for continued discussion of power grid connection).

No other structures are proposed.

The site will be graded to accommodate the rows of panels. The grading plan submitted with the Project estimates about 501,100 cubic yards of fill, and 501,500 cubic yards of cut, for a net export of 400 cubic yards. Construction is expected to require approximately 6 months.

As part of the Development Agreement for the Project, the applicant proposes to dedicate 33 feet of right of way on the north, east and south sides of the Project site for future roads(Samarkand Drive, Amboy Road and Noels Knoll Road); however, the applicant does not propose to improve these roadways.

Project Off-Site Improvements

From the Project site, power generated by the Project will be routed via an underground line to the existing Southern California Edison Carodean substation located on the south side of Two Mile Road, east of Canyon Road. The interconnection line will extend from the Project's south boundary at the intersection of Two Mile Road and Easy Street, westerly on Two Mile Road to the substation.

Improvements will be required at the substation, including a structure for SCE's equipment and remote terminal units, a new 115 kilovolt (kV) switchrack, relays, and 115kV transmission towers. In addition to the substation improvements, SCE will require that a 22 kV circuit breaker located at the Devers substation be replaced with a 63 kilo amp (kA) circuit breaker. The Devers substation is located approximately 30 miles southwest of the Project site, north of the City of Palm Springs. This replacement will occur entirely within the existing substation improvements, and no interconnection beyond what SCE currently has in place will be required.

Project Operation

The Project will be unmanned. Operation of the panels will be monitored remotely. Project personnel will visit the site for maintenance and system monitoring, on an as-needed basis. An inspection will be conducted annually. Maintenance activities, when necessary, will occur at night, when the panels are not collecting power. Any parts required will be stored remotely, and brought to the site as needed to service or replace the equipment.

The site will not be lighted. A self-powered, water-free cleaning robot will be used for regular cleaning of the panels to remove dust. Cleaning with a power-washer would occur only after a significant dust storm or similar event. On those occasions, water would be trucked in and the power washing system connected to the water truck.

Required Entitlements
The Project applicant has filed the following applications:

General Plan Amendment GPA23-000001: A General Plan Amendment (text and map) to create a new Renewable Energy (E) land use district, and to modify the land use designation on the northern 241-acres of the subject site from Rural Living (RL-5) to E. Associated text, graphics, and statistics within the General Plan will be updated accordingly.

General Plan Amendment GPA24-000001: A General Plan Amendment (map) to redesignate the southern 236-acres from Rural Living (RL-5) and Single-Family Residential (RS-E) to Single-Family Residential (RS-1).

Development Code Amendment DCA23-000016: A Development Code Amendment proposes to create a new Renewable Energy (E) district. A new section of the Development Code will be created to establish the allowable uses and development standards in the E land use district.

Rezone REZ23-000001: A Rezone to modify the land use designation on the northern 241-acres of the subject site from Rural Living (RL-5) to E.
Rezone REZ24-000001: A Rezone to modify the land use designation on the southern 236-acres of the subject site from Rural Living (RL-5) and Single-Family Residential – Estates (RS-E) to Single-Family Residential (RS-1).

Conditional Use Permit CUP23-000009: A Conditional Use Permit to allow the Project to be constructed on the site.

Development Agreement: A Development Agreement is proposed for the Project. Details will be negotiated between the City and applicant.

In addition to City entitlements, other agencies may require permits for the Project, including the US Fish and Wildlife Service, California Department of Fish and Wildlife, Mojave Desert Air Quality Management District, and Regional Water Quality Control Board.

1.3. Surrounding Land Uses

The Project site consists of 477 acres bounded by Amboy Road (extended) on the north, Two Mile Road on the south, Noels Knoll Road (extended) on the east, and Canyon Road on the west. Two Mile Road is the only paved road bordering the Project site. Lands adjacent to the Project site are generally vacant and low density residential, and designated Rural Living (RL-5), 5 acre minimum lot size, and Single-Family Residential – Estate (RS-E), 2.5 acre minimum lot size, consistent with the Project site. These land use designations allow single family homes on large lots.

Lands on the east side of Noels Knoll Road and south of Two Mile Road include scattered large lot single family homes and a church. No development occurs to the west or the north of the site.



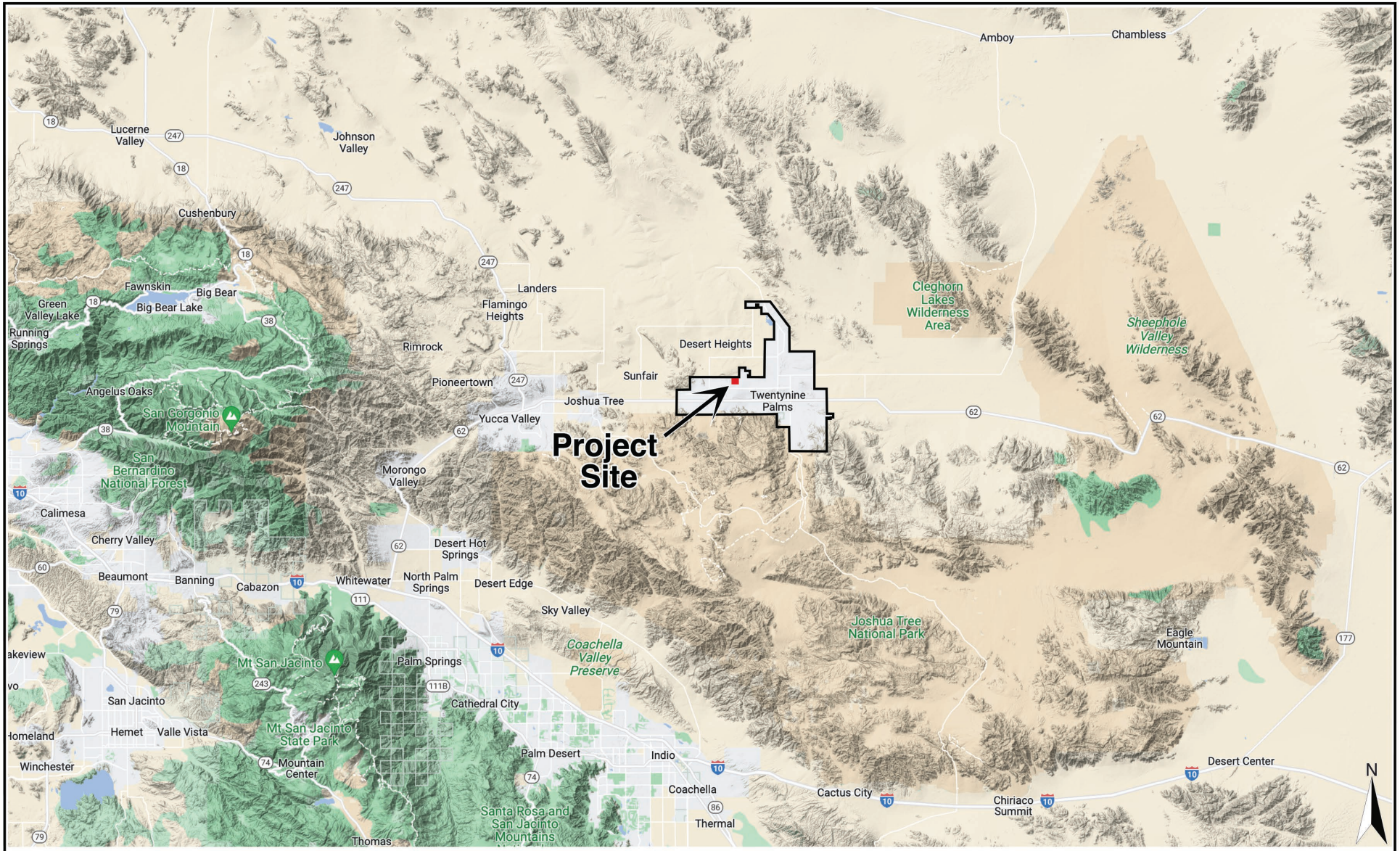
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Exhibit

1

TERRA NOVA®
PLANNING & RESEARCH, INC.

Solar Field Project
City of Twentynine Palms
Regional Location Map
Twentynine Palms, California



Source: E-Group PS, LLC, 05.2023 ; Google Maps, 2023

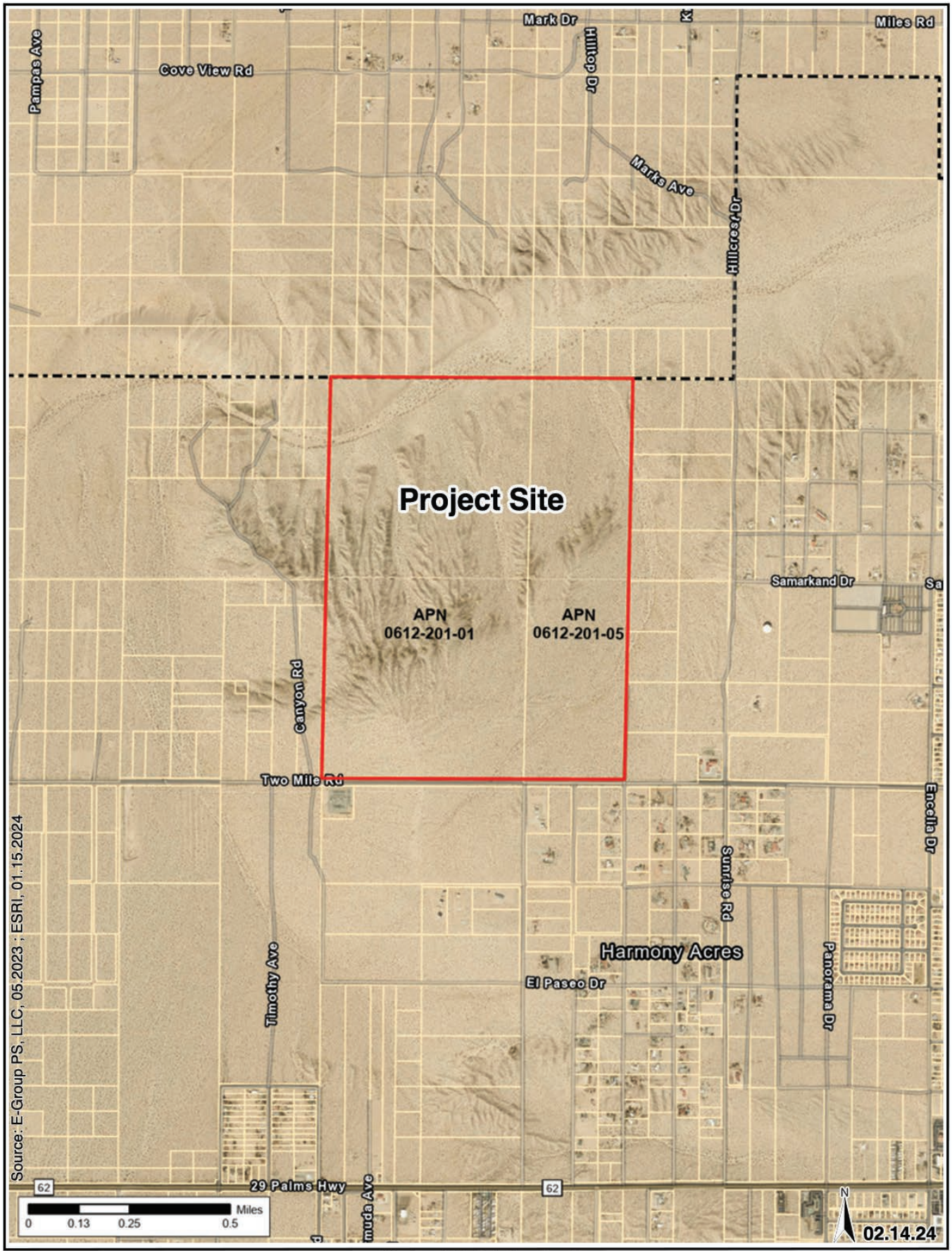
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Solar Field Project
City of Twentynine Palms
Vicinity Map
Twentynine Palms, California

Exhibit

2

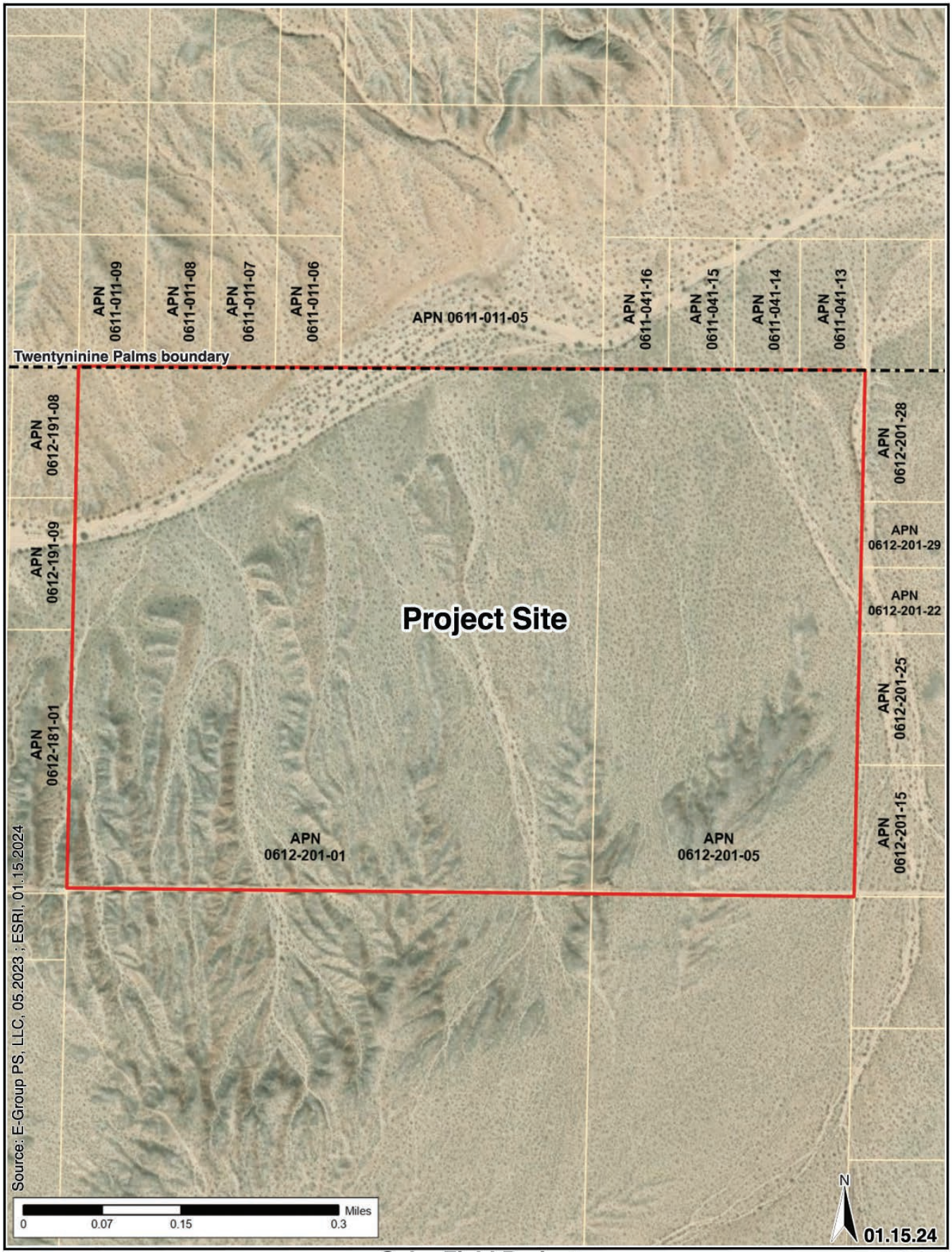


Solar Field Project
City of Twentynine Palms
Project Area Map
Twentynine Palms, California

TERRA NOVA®
PLANNING & RESEARCH, INC.

Exhibit

3

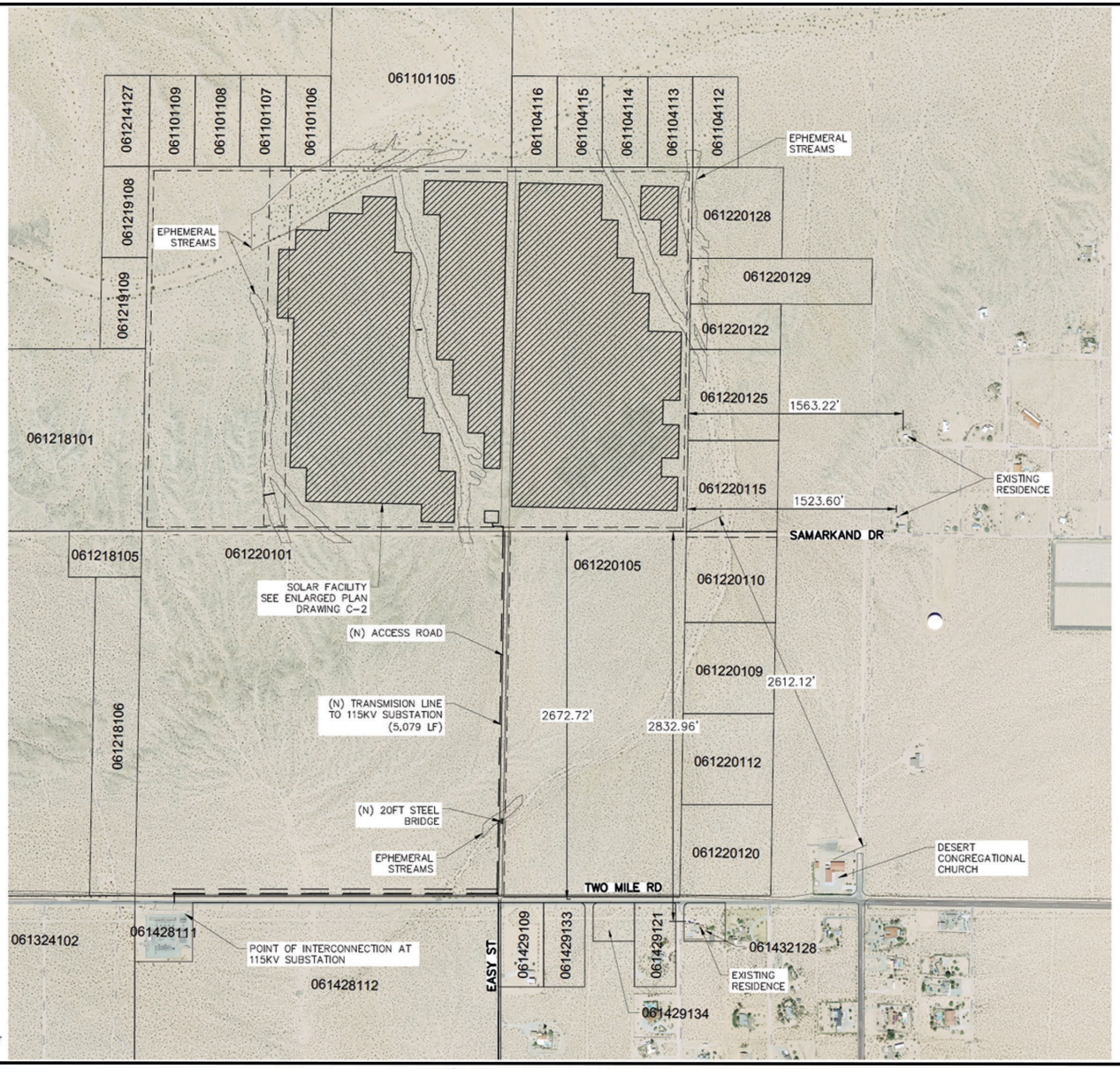


Solar Field Project
City of Twentynine Palms
Project Location
Twentynine Palms, California

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Exhibit

4



Source: E-Group PS, LLC, 05.2023 ; Google Maps, 2023

12.28.23

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Solar Field Project
City of Twentynine Palms
Project Site Plan
Twentynine Palms, California

Exhibit

5

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics		Agriculture and Forestry Resources		Air Quality
X	Biological Resources	X	Cultural Resources		Energy
X	Geology /Soils		Greenhouse Gas Emissions		Hazards & Hazardous Materials
	Hydrology / Water Quality	X	Land Use / Planning		Mineral Resources
	Noise		Population / Housing		Public Services
	Recreation		Transportation	X	Tribal Cultural Resources
	Utilities / Service Systems		Wildfire	X	Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)
On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
X	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

2/26/24
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9) The explanation of each issue should identify:
    a) the significance criteria or threshold, if any, used to evaluate each question; and
    b) the mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	X			
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	X			

Sources: City of Twentynine Palms Development Code; Google Earth; City of Twentynine Palms General Plan; application materials.

Environmental Setting

The City of Twentynine Palms is located in the Morongo Basin which forms the southwestern corner of the Mojave Desert. In the basin, Joshua Tree National Park lies to the south of the City and the Marine Corps Ground Air Combat Center to the north. The Mojave Desert is separated from the Sonoran Desert to the south by the Little San Bernardino and Eagle Mountains, which are extensions of the Transverse Range. The western Mojave Desert is a flat, sparsely vegetated region interspersed with mountain ranges and dry lakes.

The Project site is located in the northwest quadrant of the City, with elevations ranging from about 2070 to 2220 feet above mean sea level. The site's high point occurs on the south boundary, and a series of alluvial fans are clearly delineated on the west half of the site. A dry wash streambed bisects the east half of the property. The site is located 2 miles north of the San Bernardino range.

Discussion of Impacts

a) **Less Than Significant Impact.** A significant impact would occur if the proposed Project would have a substantial adverse effect on a scenic vista. A scenic vista is generally defined as a public view of highly valued visual and scenic resources exhibiting a unique or unusual feature, such as mountains, hillsides or bodies of water. An impact on a scenic vista would occur if the bulk or design of a structure or development permanently diminishes the quality of the valued view.

The proposed Project will result in solar panels on racking systems over the northern 184 acres of the site. These panels will be approximately 7 feet above the finished grade of the site. The site slopes downward from south to north.

The proposed GPA and rezone of the southern half of the site from RL-5 and RS-E to RS-1 would increase the residential density on site, which could impact views of scenic vistas. Although it would be expected that future development of residential units would comply with City development standards, including building height and setbacks, these will be reviewed on a case-by-case basis when projects are proposed for these parcels in the future.

Scenic vistas are to the south, including the San Bernardino range, and are partially blocked by the natural grade for properties and roadways to the north. Views of scenic vistas from properties and roadways to the south will not be impacted by the proposed Project, because the valued views are primarily to the south. From the east and west, views are also to the south, and would not be significantly affected by the proposed Project. Although the impacts associated with scenic vistas are expected to be less than significant, the potential impacts should be studied in detail in the EIR.

b) **No Impact.** There are no designated scenic roadways or highways adjacent to the Project site, nor are there significant rock outcroppings, trees or historic buildings on or adjacent to the property. The closest scenic highway is Twentynine Palms Highway, located approximately 1 mile south of the site. The project's distance from the highway, as well as the slope of the property downward to the north, will prevent impacts to the scenic highway. No impact will occur, and no further discussion of this issue is required in the EIR.

c) **Potentially Significant Impact.** The area surrounding the Project site is rural, as are the land use designations for the area. Although the site is located within the City, this part of the City is not planned for urban development. There is therefore potential for the Project to substantially degrade the existing visual character or quality of public views of the site and its surroundings, by introducing a large area of solar panels on racks to the natural desert environment and by increasing the residential density on the southern half of the site with a GPA and rezone. The EIR must analyze the potential impacts associated with the Project as it relates to scenic resources, and determine what mitigation measures may be available to reduce these impacts.

d) **Potentially Significant Impact.** The proposed Project does not propose any lighting, and no impacts associated with lighting are expected. However, the Project will result in expanses of reflective solar panels over the northern 184 acres of the site. Also, the GPA and rezone of the southern half of the site from RL-5 and RS-E to RS-1 would increase the site's residential density, thus increasing the number of potential light and glare sources at future buildout. An analysis of the potential for glare must be conducted, and its results summarized in the EIR. Mitigation measures may be required to reduce the impacts of glare to less than significant levels.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Sources: Farmland Mapping and Monitoring Program, CA Dept. of Conservation; General Plan Land Use Map; Google Earth.

Environmental Setting

Agricultural production is generally not active in the Morongo Basin, nor in the City of Twentynine Palms. Commercial farming has not occurred in the City for decades, likely due to its arid environment. Neither the General Plan nor the Development Code contain agricultural or forestry designations or districts, but in certain districts agricultural and related uses are allowed with a Conditional/Administrative Use Permit or other restrictions.

Discussion of Impacts

a) **No Impact.** According to the California Department of Conservation, the City and its surrounding communities were not mapped in the Farmland Mapping and Monitoring Program (FMMP). The Project is not proposed on lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, according to the California Dept. of Conservation, nor is it used for agricultural purposes. The Project will have no potential to convert designated Farmland, no impact will occur, and no further discussion of this issue will be required in the EIR.

b) **No Impact.** The Project is designated Rural Living and Single-Family Residential - Estate in the General Plan and Zoning map. Under these designations, only farming for non-commercial purposes is permitted, and farming for commercial purposes, including nurseries, requires a Conditional Use Permit in Rural Living. The proposed GPA and rezone of the southern half of the site from RL-5 and RS-E to RS-1 would not affect agricultural uses, as the RS-1 designation also permits farming for non-commercial purposes. The Project will occur entirely within the parcel boundaries, and will not impact the potential for neighboring properties to be farmed, should such a request be made by a surrounding property owner. There are no Williamson Act contracts on the Project site or surrounding properties, and the Project will have no impact on such contracts. The Project will not conflict with existing agricultural zoning or Williamson Act contract, and no further discussion of this issue is required in the EIR.

c-d) **No Impact.** There are no lands designated for forestry or forestlands in or adjacent to the City, primarily due to the arid nature of the environment, which precludes the growth of forestlands. No timberland production occurs in or adjacent to the City. The Project will therefore have no impact on forest lands or the production of timber, and no further discussion of this issue will be required in the EIR.

e) **No Impact.** As discussed above, the City has no forest or timberlands, and the Project will not impact agricultural activities allowed under the current land use designations of Rural Living (RL-5) and Single-Family Residential – Estate (RS-E) should such activities be proposed on surrounding lands in the future. The proposed GPA and rezone of the southern half of the site from RL-5 and RS-E to RS-1 would not impact the agricultural activities currently allowed because RS-1 also permits farming for non-commercial purposes. No impact will occur, and no further discussion of this issue will be required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	X			
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				X

Sources: City of Twentynine Palms General Plan; MDAQMD 2020 CEQA and Federal Conformity Guidelines; project materials.

Environmental Setting

The City of Twentynine Palms lies within the Mojave Desert Air Basin (MDAB), and is under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). MDAQMD is geographically the second largest of the 35 air districts in the State of California. All development within the City is subject to MDAQMD's 2020 "California Environmental Quality Act (CEQA) and Federal Conformity Guidelines." MDAQMD operates and maintains 13 regional air quality monitoring stations in different cities throughout its jurisdiction. The nearest monitoring station to the Project is located on Adobe Road, east of the Project site.

Criteria air pollutants are contaminants for which state and federal air quality standards (California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS)) have been established. MDAQMD is in nonattainment for ozone (O_3) and inhalable particulate matter less than 10 microns in size (PM_{10}) under the California and National Ambient Air Quality Standards (CAAQS and NAAQS, respectively). As a result, MDAQMD has adopted federal attainment plans for ozone and PM_{10} under the Federal Clean Air Act.

Ambient air quality in the MDAQMD, including the Project area, does not exceed state and federal standards for carbon monoxide, nitrogen dioxides, particulate matter less than 2.5 microns in size, sulfur dioxide, lead, sulfates, hydrogen sulfide, or visibility reducing particles.

The Project will contribute to an incremental increase in regional ozone and PM_{10} emissions during construction. During operation, the Project is expected to result in minimal emissions associated with maintenance and inspection trips at the Project.

Discussion of Impacts

a) **Potentially Significant Impact.** According to MDAQMD's 2020 CEQA and Federal Conformity Guidelines, a project is considered non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area relative to the applicable land use plan.

The proposed Project will result in a commercial solar project that will generate electricity, and generate limited periodic trips associated with maintenance, inspection and repair. These trips would be expected to be substantially lower than the daily trips generated by residents in the Rural Living designation. The Project site could generate up to 120 single family homes on its 477 acres, which would result in daily traffic, and the emissions associated with these houses and their traffic. Under the proposed Project, the northern 241 acres would be redesignated to Renewable Energy (E), which does not permit residential uses, and the southern 236 acres would be redesignated from RL-5 (1 DU/5 AC min) and RS-E (1 DU/2.5 AC min) to RS-1 (1 DU/AC), which increases the residential density. Overall, under the proposed Project, the site could ultimately be developed with up to 236 single family dwelling units, an increase of 116 dwelling units. Increasing the site's overall residential density would result in increased emissions on the property during the life of the Project. This increase was not considered in the MDAQMD's plans and programs, and would therefore have a potentially significant impact on the implementation of these plans and programs.

The EIR will analyze potential impacts to the implementation of air quality plans and provide mitigation measures if necessary.

b) **Less Than Significant Impact.** A significant impact could occur if the Project would make a considerable cumulative contribution to federal or State non-attainment pollutants. The Mojave Desert portion of the MDAB is classified as a "non-attainment" area for ozone and PM_{10}. Any development project or activity resulting in emissions of PM_{10}, ozone, or ozone precursors will contribute, to some degree, to regional non-attainment designations of ozone and PM_{10}.

Currently MDAQMD's approach to assessing cumulative impacts is based on the MDAQMD Attainment Plan forecasts for attainment of ambient air quality standards in accordance with the requirements of the California Clean Air Act (CCAA), which consider the regional forecasted future regional growth. Therefore, if all projects are individually consistent with the growth assumptions within MDAQMD's Attainment Plan, and criteria pollutant emissions do not exceed MDAQMD's recommended regional thresholds of significance, future development would not impede the attainment of ambient air quality standards.

The proposed Project will result in air quality emissions during construction, including the use of heavy equipment for grading and panel installation, as well as the generation of dust, and associated particulate matter. The Project's construction emissions must be quantified to determine whether they will meet or exceed the MDAQMD's thresholds of significance, or whether they will cumulatively impact air quality in the City. The CalEEMod model currently in effect will be used to quantify the Project's construction emissions. Although it is expected that construction impacts will be less than significant, the EIR will analyze the modeling results, to assure that impacts are less than significant, or are mitigated to less than significant levels.

The proposed solar project will not generate daily vehicle trips, but rather periodic maintenance, inspection and repair trips. The Project will disturb approximately 184 acres of the northern portion of the site for the installation of the solar panels. The potential long term impacts of this disturbance must be considered in the EIR. Because the solar project will remain as sand and dirt, with no paving or stabilization, the operation of the Project has the potential to generate dust, particularly during wind events. The EIR will evaluate these impacts, which are expected to be less than significant at this time, to either confirm this determination, or to provide mitigation measures if the impact would be potentially significant.

The solar project will also have a marginal need for electric power during its operations. The increased residential density resulting from the GPA and REZ would result in increased emissions on the property during the life of the Project. The Project's increased residential density, stationary sources of emissions from the solar project, as well as the limited traffic trips expected to be generated from the solar project, will be characterized and analyzed, to assure that emissions will be within the MDAQMD's thresholds of significance. This issue will be addressed in the EIR.

c) Less Than Significant Impact. A project would have a significant impact if the proposed project would expose sensitive receptors to substantial concentrations of criteria air pollutants or toxic air contaminants (TACs) including asbestos, diesel particulate matter (diesel PM) from construction equipment and vehicle traffic, and fugitive dust from construction activity. According to the MDAQMD CEQA and Federal Conformity Guidelines, residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses.

As described above, the Project will require the use of heavy equipment during construction. The CalEEMod model will be utilized to determine whether the sensitive receptors (homes) to the east of the Project site will be impacted by Project construction. Although impacts are currently expected to be less than significant, the EIR will analyze the modeling results, and provide mitigation measures if emissions exceed established thresholds.

d) No Impact. The proposed Project will result in the development of a commercial solar project on 184 acres of a 477-acre site. There is some potential for odors to occur during construction, primarily from the emissions of heavy equipment, but these odors would occur primarily during the grading phase of the Project, would disperse quickly, and would be temporary. The operation of the solar project is not expected to generate any odors, as the solar panels will not emit any odor-causing materials. No impact is expected, and no further discussion of this topic is required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	X			
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	X			
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (General Plan)	X			
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Sources: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The City of Twentynine Palms is located within the Mojave Desert biome in a portion of the western Mojave Desert in San Bernardino County, California. The primary vegetation community in the City is Creosote bush scrub. The Project site is also crossed by desert dry washes and braided alluvial fans, which may qualify as waters of the State of California. There are no waters of the US in the City, due to the lack of connection to a navigable waterway.

The City participates in the West Mojave Plan, which serves as a habitat conservation plan for both public and private entities in the West Mojave Desert. It encompasses approximately 9.4 million acres of land that includes deserts throughout San Bernardino, Kern, Inyo, and Los Angeles Counties. Portions of the plan include requiring focused surveys for Special Status Species, burrowing owl, and sensitive plants where suitable habitat is present.

Discussion of Impacts

a) **Potentially Significant Impact.** The Project site occurs in a sparsely developed area of the City. The potential for sensitive species, including desert tortoise and burrowing owl, in not currently known. A biological resource analysis must be conducted to determine whether any sensitive species occur on the site, and what impacts the development of the Project could have on those species if they occur. The results of the biological resource analysis will be summarized in the EIR, and mitigation measures prepared to assure that impacts to sensitive species are reduced to less than significant levels.

b) **Potentially Significant Impact.** The Project occurs on a site which currently contains several washes. The Project proposes to bridge these washes, but whether these bridges will impact sensitive habitat is not known. An analysis of the habitat and how waters of the State could be impacted by the Project must be conducted to determine what impacts the Project will have on habitat and washes. This analysis must also include any necessary mitigation measures to assure that any impacts to waters of the State are mitigated to less than significant levels.

c) **No Impact.** There are no waters of the US in the City, due to the lack of connection to a navigable waterway. Therefore, the Project would have no impact to federally protected wetlands as defined by Section 404 of the Clean Water Act.

d) **Potentially Significant Impact.** The Project's location in a sparsely developed area of the City results in the potential for the Project to block the movement of native and migratory species, including migratory birds. The EIR will include an analysis of the potential impacts of the project to wildlife movement, and whether the Project harbors any wildlife nursery sites.

e-f) **No Impact.** The City of Twentynine Palms General Plan establishes goals and policies to ensure that natural resources including the pallid bat, pallid San Diego pocket mouse, and desert tortoise are protected.

Development of the proposed Project will occur within the City of Twentynine Palms and will follow any mitigation measures specified in the project-specific biological report specifically relating to the species identified in the General Plan; therefore, it will have no impact on the overlay districts nor any conflict with City or county regulations and plans.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?	X			
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	X			
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

Sources: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The City is located in the Mojave Desert. Archaeologists generally divide prehistory in the Mojave Desert region into five periods marked by changes in archaeological remains that date back to 12,000 years ago. The Lake Mojave period (ca. 8000-5500 B.C.), is associated with small mobile groups of hunters and gatherers who inhabited the Mojave Desert. These groups continued to inhabit the region during the Pinto Period (ca. 5500-2500 B.C.), and relied more on ground foods, small and large game animals, and the collection of plants. Distinct cultural changes occurred during the Newberry Period (ca. 1500 B.C.-500 A.D.), when small residential groups moved between select localities, established a geographically expansive land-use pattern and engaged in long-distance trade. The two ensuing periods, Saratoga (ca. 500-1200 A.D.) and Tecopa (ca. 1200-1770s A.D.), are characterized by seasonal group settlements near accessible food sources and the intensification of the use of plant foods, as evidenced by groundstone artifacts and the evolution of pottery.

The City is located in an area historically occupied by two Native American groups, the Serrano and the Chemehuevi. The Serrano's homeland was centered in the nearby San Bernardino Mountains, but also included lowlands along both flanks of the mountain range. The Chemehuevi, a subgroup of the Southern Paiute, traditionally occupied the Mojave Desert east to the Colorado River. The Serrano settled mostly near where flowing water emerged from the mountains. The Chemehuevi, with fewer people spread over a much wider area, cultivated, gathered, and hunted in the open deserts, but were also known for their agricultural practices. Members of each tribe gathered at important base camps or villages for annual ceremonies and tribal interaction with neighboring groups.

In the Twentynine Palms area, the Serrano and the Chemehuevi relied on the waters of a desert oasis located in the southeastern portion of the City. The Serrano first settled in the oasis and named it *Maara*, "the place of little springs and much grass". The Chemehuevi began to settle around the oasis in the mid-19th century.

While European contact may have occurred as early as 1771 or 1772, direct European influence on Serrano and Chemehuevi lifeways did not begin until the mission system expanded to the edge of Serrano territory in the 1810s. By the early 20th century, the majority of the Serrano and Chemehuevi population was incorporated into the reservation system. Today, most Serrano descendants live on the San Manuel and the Morongo Indian Reservations, while the Chemehuevi are divided among the Chemehuevi, the Colorado River, and the Morongo Reservations.

Non-Native settlement occurred in the Twentynine Palms area by the late 1800s, when prospectors sought their fortunes in nearby gold camps. The first pioneer homesteaders came in 1910, and a small community started to grow. In 1952, the U.S. Defense Department established a marine base north of the oasis for glider training, now known as the U.S. Marine Corps Air Ground Combat Center. The City of Twentynine Palms was incorporated March 23, 1987.

Discussion of Impacts

a), b) **Potentially Significant Impact.** The Project site is currently vacant, and no historic structures occur on the property. A number of prehistoric resources have been identified in the City. Although the Project site is not known to have harbored resources, and is not located near water sources used by the Serrano or Chemehuevi, a cultural resource assessment must be conducted to determine whether resources occur on the site, and whether mitigation measures are required to reduce the impacts to less than significant levels. The EIR will summarize the findings of the study, and include any required mitigation measures.

c) **Less Than Significant Impact.** There are no known cemeteries or buried human remains on the Project site. The Project is located approximately 1,350 feet west of the City's public cemetery, but will not impact the cemetery.

California law requires that if human remains are identified during earth moving activities, all activity stop, that the coroner be notified to determine the nature of the remains and whether Native American consultation is needed. Although the impacts to human remains are expected to be less than significant, the EIR will examine the potential impacts to assure that this is indeed the case.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
VI. ENERGY -- Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

Source: Twentynine Palms General Plan (2012).

Environmental Setting

Nuclear energy, fossil fuels (e.g. oil, coal and natural gas) and renewable sources (e.g. wind, solar, geothermal and hydropower) are various sources of energy. The electrical energy to the City is provided by Southern California Edison (SCE). Natural gas service is provided to the City by Southern California Gas Company (SoCalGas). Natural gas is mainly utilized for water heaters and heating of homes, as well as a broad range of commercial and industrial equipment. In areas where natural gas is not available, propane gas, stored in on-property tanks, is also utilized. Both SCE and SoCalGas offer various programs and incentives for all users to help reduce energy consumption.

In 2002, California established a Renewable Portfolio Standard (RPS) that requires a retail seller of electricity to include in its resource portfolio a certain amount of electricity from renewable energy sources, such as wind, geothermal, small hydro, and solar energy. Senate Bill (SB) 100, signed into law in September 2018, requires utilities to procure 60 percent of their electricity from renewables by 2030 and sets as a State policy that State agencies and end-use retail customers receive 100 percent of energy from renewable and zero- carbon resources by 2045. To ensure retail sellers meet their RPS requirement, the California Public Utilities Commission (CPUC) is responsible for establishing enforcement procedures and imposing penalties for non-compliance with the program (CPUC, 2018).

Discussion of Impacts

a) **Less Than Significant Impact.** The Project will result in a commercial solar project that will generate 50 MW of electrical power, which will be routed to SCE's substation for use on the electric grid. As a result, the solar project is expected to have a positive impact on long-term power use, and no impact on wasteful, inefficient or unnecessary power use. In addition, the solar project will not require natural gas, and will result in a very low use of gasoline during operation, since it will not generate daily vehicle trips.

The proposed GPA and REZ will increase the site's residential density by 116 single-family dwelling units. Although no residential development is proposed at this time, future buildout of the site under the new RS-1 land use designation would result in a net increase in energy use that was not previously predicted for the site.

The EIR will quantify the amount of energy buildout of the site would require under the new density, and assure the amount is not excessive or wasteful.

The Project will require some electrical power and gasoline use during its construction. The amount required is currently undetermined, but is expected to result in less than significant amounts of use. The EIR will quantify the amount of energy that the Project will require during construction, and assure that this amount is not excessive or wasteful.

b) **No Impact.** The Project will result in a commercial solar project which will implement the State's Renewable Portfolio Standard and provide a new source of renewable energy for electricity providers. The proposed GPA and REZ will increase the site's residential density by 116 single-family dwelling units; however, future development of the site would be required to develop in accordance with the building and energy codes adopted at the time of construction to assure there is no obstruction to renewable or energy efficiency plans. Therefore, the Project will not obstruct plans for renewable energy or energy efficiency, and no further discussion of this subject is required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?	X			
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Sources: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The City is located within a wedge-shaped fault block known as the “Mojave Block.” The Mojave Block is located at the junction of two district geomorphic provinces: the Eastern Transverse Ranges Province, a region of low to moderately high mountains that include Joshua Tree National Park, the Little San Bernardino Mountains, the Pinto Mountains, and several ranges to the southeast; and the Mojave Desert Province, an arid region of alluvial fans, expansive desert plains, dry lakebeds and scattered mountain ranges. The Mojave Block is bounded by the Garlock Fault to the north, the San Andreas fault system

to the west and southwest, and the southern Death Valley fault zone, Granite Mountains, and Packard Well faults to the east.

In the Twentynine Palms area, the trace of the Pinto Mountain Fault is recognized by a pressure ridge and divides into two splays. The northern splay of this fault is mostly buried by Quaternary valley fill but emerges where it joins the west splay of the Mesquite Lake Fault east of the City limits. The region is susceptible to a range of geologic hazards, including ground rupture, major ground shaking, slope instability, and collapsible and expansive soils.

Soils

The Project area is predominantly underlain by Quaternary-age relatively younger surficial sediments and older surficial sediments. These relatively younger surficial sediments are mapped as windblown sand (Qs), younger alluvium (Qa), and micaceous clay and silt (Qc). The older alluvial surficial sediments (Qoa) are described as older valley fill materials derived from mountains to the west and south.

Discussion of Impacts

a) i) **No Impact.** The Project site is not underlain by any known fault. The two closest faults are the West Calico Fault to the northwest, and the Pinto Mountain Fault to the south. The site will not be subject to ground rupture, and no impact is expected. As a result, the EIR will not address this issue any further.

ii) **Less Than Significant Impact**. The Project is located in a seismically active region where local and regional faults can produce severe ground shaking. The two main faults crossing the City, Pinto Mountain fault and Mesquite Lake fault, have the potential of generating earthquakes of up to 7.3 magnitude on the Richter scale. The Project will be required to implement the most current Building Code in effect at the time that the Project is undertaken. The Code contains specific measures to address strong ground shaking, to protect structures from failure. Nevertheless, the EIR will consider the potential impacts of significant groundshaking, to assure that the Project will not be impacted by this issue.

iii) **No Impact**. The Project site is not located in an area identified in the General Plan as susceptible to liquefaction. The closest liquefaction potential identified in the General Plan occurs approximately 3 miles to the east. Because the depth to groundwater under the site exceeds 50 feet, no liquefaction potential exists, and no further discussion of this issue will be provided in the EIR.

iv), c) **Less Than Significant Impact.** The site occurs on a sloped property that clearly has been sculpted by braided channels, particularly in its northwestern portion. The EIR must consider whether the site's topography, when affected by Project-related grading, could result in impacts related to landslides. Although it is currently understood that the Project's conformance to grading and compaction requirements will assure that these impacts are less than significant, the analysis in the EIR will confirm this, or impose any mitigation measures to assure that landslide impacts are reduced to less than significant levels.

b) **Potentially Significant Impact.** The Project will result in the grading of most of the site, as well as trenching for on-site wiring and off-site conduit to the SCE substation. Unlike most development projects, the Project will not result in the covering of disturbed surfaces by asphalt or buildings. As a result, the completed Project has the potential to result in soil erosion, both from water and wind. The EIR will examine these potential impacts, and, if necessary, evaluate potential mitigation measures to reduce Project impacts to less than significant levels.

d) **No Impact.** The City's soils are typically sands and silts typical of alluvial fans. The Project site's soils are consistent with that soil profile, and are not expected to contain clay or similarly expansive components. As a result, construction of the proposed Project will not be impacted by expansive soils, and no further discussion of this issue is required in the EIR.

e) **No Impact.** The solar project proposes no septic system, and will not be connected to a sewer system. The construction of the commercial solar project would require temporary portable toilets during construction, and may require temporary portable toilets for extended maintenance or repair. These toilets would be brought on site and serviced by the provider, and no sanitary waste would result. The proposed GPA and REZ will increase the site's residential density, however future development would be subject to the same City requirements pertaining to the installation of septic tanks as are imposed on all residential projects in the City. Therefore, there will be no impacts associated with soils capable of supporting septic systems, and no further discussion of this issue will be required in the EIR.

f) **No Impact.** According to the City's General Plan, San Bernardino County, in general, has an extensive record of fossil life starting in Jurassic time, 150 million years ago. Fossilized remains are expected to occur within areas containing older finer-grained fluvial, lacustrine, or aeolian deposits. The Project area primarily consists of alluvium (Qoa), which consists of late Pleistocene gravelly sands. The Project proposes shallow excavations (up to 7 feet in depth) for pilons to support the solar arrays. At these shallow depths, and in alluvium occurring on the site, potential for paleontological deposits is negligible. No significant paleontological resources are expected at the site, and no impact will occur. No further discussion of this issue will be required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS -- Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	X			

Sources: City of Twentynine Palm General Plan; San Bernardino County Regional Greenhouse Gas Reduction Plan (March 2021); MDAQMD CEQA and Federal Conformity Guidelines; project materials.

Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. The principal GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. GHG sources include both natural and anthropogenic processes.
Anthropogenic GHG emissions in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to an overall trend of unnatural warming of the earth's climate, known as global climate change or global warming.

State laws, such as Assembly Bill 32 (AB 32) and Senate Bill 32 (SB 32), require all cities to reduce greenhouse gas emissions to 1990 levels by the year 2020. SB 32 is the extension of AB 32 which requires the state to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030.

In 2021, SANBAG prepared a Regional Greenhouse Gas Inventory and Reduction Plan (March 2021) which included a greenhouse gas inventory and forecast for Twentynine Palms. The City participated in the plan development and set a goal to reduce its community GHG emissions to a level of 46% below 2008 GHG emissions level by 2030. The City is expected to meet and possibly exceed this goal with joint state and local efforts and reduction measures set forth by AB 32. In addition to the Regional Greenhouse Gas Inventory and Reduction Plan, the City's General Plan includes policies and measures to facilitate GHG emission reduction through encouraging alternative transportation, promoting renewable energy, and implementing energy efficient building technologies.

Discussion of Impacts

a) **Less Than Significant Impact.** The proposed solar project will generate negligible GHG emissions during operations, but will generate GHG emissions during construction. Construction equipment and worker trips will result in GHG emissions. The level of these emissions is not known, and must be considered in the EIR. Although impacts associated with GHG emissions during construction are

expected to be less than significant, the EIR will quantify these emissions and assure that they do not exceed thresholds of significance.

The increased residential density resulting from the GPA and REZ would result in increased greenhouse gas emissions on the property during the life of the Project. The Project's increased residential density will be characterized and analyzed to assure that emissions will not exceed thresholds of significance. This issue will be addressed in the EIR.

b) **Potentially Significant Impact.** The Project will result in a commercial solar project that will produce electricity for the power grid. As a renewable power source, operation of the solar project will assist the City, the region and the State in lowering GHG emissions generated by power generation.

The proposed GPA and REZ will increase the site's residential density by 116 single-family dwelling units. Although no residential development is proposed at this time, future buildout of the site under the new RS-1 land use designation would result in a net increase in greenhouse gas emissions that was not previously predicted for the site. The EIR will quantify the increase in GHG emissions resulting from future buildout of the site under the new land use designation, and assure it will not conflict with an adopted policy, regulation or plan for reducing GHG emissions. This issue will be addressed in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS --Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

Sources: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The proper management of hazardous materials is a common concern for all communities. Products as diverse as gasoline, paint, solvents, household cleaning products, refrigerants, and radioactive substances are categorized as hazardous materials. The storage, use, generation, transport, and disposal of hazardous materials are highly regulated by federal, state, and local laws and regulations.

The San Bernardino County Fire Department's Hazardous Materials Division oversees and regulates businesses in the City that transport, store or use hazardous materials in larger quantities. The Department of Toxic Substances Control (DTSC) lists 16 large quantity users in the City, primarily businesses located on or near Highway 62. Sites

associated with cleanup of hazardous materials in and near the City have been, and currently are those associated with the military installations at the Marine Corps base, north of the City.

Discussion of Impacts

a, b) **Less Than Significant Impact with Mitigation.** The Project will result in the installation and operation of a commercial solar project. The Project is not expected to use or store large quantities of hazardous materials, but will include transformers and similar equipment which could use such materials. In addition, construction activities have the potential to bring oils, solvents and chemicals onto the site for use in the construction process. Although the regulations in place at the local, regional and national level are expected to assure that impacts associated with the use and transport of hazardous substances are less than significant, the EIR will analyze, and to the extent possible quantify the use and storage of these materials, and include any mitigation measures necessary to reduce impacts to less than significant levels.

c) **No Impact.** There are no schools within ¼ mile of the Project site, and the Project will not handle or use acutely hazardous materials. Therefore, no impact will occur, and no further discussion of this topic is required in the EIR.

d) **No Impact.** A search of the DTSC and SWRCB lists identified no open cases of hazardous waste violations in the City. Therefore, the Project is not on a parcel included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As a result, no impact will occur, and no further discussion of this issue is required in the EIR.

e) **No Impact.** The Project site is located 5.7 miles southwest of the Marine Corps base, and is not within its land use plan. The Project will not result in a safety hazard, and no impact will occur. No further discussion of this subject is required in the EIR.

f) **No Impact.** The Project will result in a commercial solar project. The Project site is bounded by dirt roads to the north, east and west, and Two Mile Road (paved) to the south. The Project will not impact those roads. City's emergency response plans will continue to be implemented as they have been, with or without the Project. There will be no impact, and no further discussion of this subject is required in the EIR.

g) **No Impact.** The General Plan identifies the project site as being in a Local Responsibility Area and a Moderate Fire Hazard Zone. The Project site is not in or near a heavily vegetated area, and will not be impacted by wildfires. No impact will occur, and no further discussion of this issue is required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;		X		
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;		X		
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or		X		
(iv) impede or redirect flood flows?		X		
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Sources: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010); Amended Final Urban Water Management Plan for Twentynine Palms Water District (TPWD).

Environmental Setting

Domestic Water

Twentynine Palms Water District (TPWD) manages and distributes the local ground water supply in the City of Twentynine Palms and portions of the surrounding unincorporated areas of San Bernardino County. The District's water service area spans 87 square miles, maintaining 200 miles of pipeline and 17 million gallons of water storage capacity. The District's water supply source is 100 percent local groundwater extracted from four sub-basins south of the Pinto Mountain Fault, which are fed by rainfall in the Pinto Mountains.

The District overlays portions of the Indian Cove, Eastern and Fortynine Palms sub-basins of the Joshua Tree Basin, and part of the Twentynine Palms Valley Basin.

As an urban water supplier, TPWD is mandated to prepare an Urban Water Management Plan (UWMP) per the California Water Code, undertaking water supply planning over a 20-year period in five year increments, by analyzing existing and projected water supply opportunities including recycled water for existing and future demands, in normal, single-dry and multiple-dry years, and implementing conservation and efficient use of urban water supplies.

Wastewater Treatment

The only Wastewater Treatment Plant (WWTP) in the region is located at the Marine Corps Air Ground Combat Center (MCAGCC). The facility treats all wastewater generated from the Mainside area of the MCAGCC. The City, including the Project area, does not have a sanitary sewer system and currently operates with septic tanks.

Flood Control/Drainages

The City, including the Project site, is located in the southern Mojave Desert. With an average precipitation of 5 inches per year, the area sees infrequent thunderstorms that can cause flooding in the City.

Twentynine Palms Channel, the only major drainage structure in the City, was designed and constructed to protect the central business district and downtown area. The natural major drainages of Fortynine Palms Canyon, Twentynine Palms Wash, Indian Cove and Dog Wash, as well as small unnamed drainages in the Pinto Mountains, can carry flash floods and impact downstream development in the City.

The San Bernardino County Flood Control District (SBFCD) is responsible for managing regional drainage within and in the vicinity of Twentynine Palms. The City works with SBFCD to manage local drainages in the City, which are divided between well-defined drainage courses (some have been channelized) and areas of wide sheet flow. Development that may alter the direction of flow onsite are conditioned per standard San Bernardino County practices to maintain the existing site drainage patterns at inlets and outlets.

The Project site will be subject to City requirements relating to flood control. The City implements standard requirements for stormwater retention and participates in the National Pollution Discharge Elimination System (NPDES) to protect surface waters from pollution.

Water Quality

Water quality is regulated by multiple agencies, depending on the source. The TPWD implements the standards of the Regional Water Quality Control Board (RWQCB) in its distribution of domestic water.

Surface water quality in the region is largely under the influence of land uses that affect runoff, such as urban and industrial uses. Runoff from stormwater can transport pollutants that collect on the ground surface and affect water quality of receiving streams, rivers, and channels.

Description of Impacts

a) **Less Than Significant Impact.** The City and RWQCB impose requirements for surface water protection with which the Project is required to comply. The Project is required to prepare a hydrology study to control surface water pollution during construction and operation. The EIR will analyze the Project's hydrology study and other plans and impose any mitigation measures necessary to assure that water quality is not affected by the Project.

The Project does not propose septic systems, and will therefore have no impact on waste discharge. Future development of the site under the proposed RS-1 land use designation would be subject to the same City standards and requirements regarding septic tanks and surface water protection as all residential development in the City. Overall, the impacts to water quality are expected to be less than significant, but will be analyzed in the EIR.

b) **Less Than Significant Impact.** The solar project will not require on-site water supplies, but would use trucked-in water periodically to clean the solar arrays. The proposed GPA and REZ will increase the site's residential density by 116 single-family dwelling units. Although no residential development is proposed at this time, future buildout of the site under the new RS-1 land use designation would result in a net increase in water demand. The EIR must quantify the potential water use and assure the Project will not impact the water supply.

c i)-iv) **Less Than Significant Impact with Mitigation.** As described above, the City requires the preparation of a hydrology study to analyze and design the on-site flood control system for the site. In the case of the proposed Project, much of the ground surface will remain in its natural condition, which could result in siltation if the system is not adequately designed. The EIR will review the design of the flood control system, and assure that impacts are less than significant, or impose mitigation measures if necessary to assure that neither storm flows nor erosion impact off-site properties or receiving waters.

d) **No Impact.** The Project is not located in the vicinity of a water body or a dam. The City is located inland and would not be subject to tsunami. No hazard from dam failure, tsunami or seiche is possible. No impact would occur, and no further discussion of this subject will be provided in the EIR.

e) **No Impact.** The proposed Project will be required to comply with all applicable water quality standards approved by the City and the Regional Water Quality Control Board for both construction activities and long-term operation of the Project. Adherence to the RWQCB and City's standard requirements related to water quality will ensure there will be no impact to a water quality control plan. No further discussion of this issue will be required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	X			

Sources: City of Twentynine Palms General Plan; project materials.

Environmental Setting

The Project site is currently vacant and surrounded by sparsely developed desert lands. The site is currently designated Rural Living, 5 acre minimum, and Single-Family Residential – Estate, 2.5 acre minimum, which allows single family homes on larger lots, and does not permit commercial solar projects. The Project will require two General Plan Amendments, two Rezones, and a Development Code amendment.

Discussion of Impacts

a) **No Impact.** The Project site is currently vacant, and occurs in an area of the City with large-lot residential uses scattered to the south and east. Little to no development occurs on the north or west. The Project will not divide an established community, and no impact will occur. No further discussion of this issue will be required in the EIR.

b) **Potentially Significant Impact.** The Project proposes two General Plan Amendments, two Rezones, and a Development Code Amendment to add a new Renewable Energy Land Use Designation to these documents, and to redesignate the southern 236 acres to RS-1, which increases the density to make up for lost residential density on the northern 240 acres per Senate Bill 330 (No Net Loss). The EIR must analyze whether, or to what extent this new land use designation would impact the goals, policies and programs of the General Plan and the standards of the Development Code. If necessary, the EIR will need to consider mitigation measures to reduce identified impacts to less than significant levels.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

The City is not identified as a mineral resource area of significance, although mining has occurred in and around the City in its history. The General Plan uses the State's mineral resource designations to determine the potential for mineral resources to exist in any given area.

Discussion of Impacts

a), b) No Impact. Neither the City nor the Project site are designated by the State as having significant mineral resources. As a result, implementation of the Project will not impact such resources, and no further discussion of this issue is required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XIII. NOISE - Would the project result in:				
a) Generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Sources: Google Earth; City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The City has established goals, policies, and programs to limit and reduce the effects of noise intrusion on sensitive land uses and set acceptable noise levels for varying types of land uses in its General Plan. The City uses the Community Noise Equivalent Level (CNEL) to guide acceptable noise levels in the community. The CNEL scale establishes acceptable noise levels for low density, single family homes at 50 to 60 dBA, and conditionally acceptable levels at 55 to 70 dBA. The CNEL scale represents an average of noise levels over a 24-hour period and is weighted for the quieter evening and nighttime periods. The City also enforces noise events through the City Noise Ordinance (Chapter 19.74).

The Project area is sparsely developed, generates limited traffic, and is subject to a quiet noise environment currently.

Discussion of Impacts

a) **Less Than Significant Impact.** The Project proposes an un-manned commercial solar project. The solar project's operation will generate some noise from the equipment, including inverters and transformers, to be installed on the property. The level of noise that this equipment will generate is not currently known. The proposed GPA and REZ will increase the site's residential density by 116 single-family dwelling units. Although no residential development is proposed at this time, future buildout of the site under the new RS-1 land use designation would result in a net increase in operational noise not previously predicted for the site. The level of noise that the Project will generate during its operation and future buildout will be further analyzed in the EIR.

In addition, the Project will generate noise from construction equipment during the grading and installation of the Project's improvements. The EIR must consider these potential impacts and assure that they remain less than significant.

b) **Less Than Significant Impact.** Excessive vibration during construction occurs only when high vibration equipment (i.e., compactors, large dozers, or pile drivers) are operated. The proposed Project may require limited use of equipment with high vibration levels during construction. The EIR will analyze the equipment to be used, and assure that impacts associated with the temporary use of this equipment does not cause significant levels of vibration.

c) **No Impact.** The proposed Project is located more than 5 miles southwest of the Marine Corps airfield. The solar project will be unmanned and will not introduce new sensitive receptors to the area. The site is currently designated for residential uses; therefore the proposed GPA and REZ will not introduce new sensitive receptors to the area that were not previously planned for. There will be no impact from noise at the airfield, and no further discussion of this issue is required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

Per the 2020 U.S. Census, the total population in the City was 28,065, which includes the MCAGCC. The City's 2012 General Plan lists an ultimate buildout population of 103,275 for the entire City, including 22,500 for the MCAGCC and 80,775 for the remainder of the City.

Discussion of Impacts

a) **Less than Significant Impact.** The Project would result in the development of a commercial solar project which will connect to the SCE substation and add to the electricity supply. The proposed GPA and REZ will increase the site's residential density by 116 single-family dwelling units, which could result in direct population growth. Impacts from the population increase will be analyzed in the EIR.

b) **No Impact**. The Project site is currently vacant, and will not displace any resident. In addition, operation of the solar project will generate very limited employment (for maintenance and repair only), which would be expected to be filled by existing residents, and will therefore not require additional housing. There will be no impacts associated with displacing existing population or housing, and no further discussion of this issue will be required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for 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 any of the public services:				
Fire protection?			X	
Police protection?			X	
Schools?			X	
Parks?			X	
Other public facilities?			X	

Sources: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010); project materials.

Environmental Setting

Fire Protection

The San Bernardino County Fire Department (SBCFD) is responsible for fire protection within the City. SBCFD operates 67 fire stations in 24 cities and covers approximately 19,278 square miles in the County. SBCFD has a staff of about 1,017 county firefighting personnel and 654 fire suppression personal available during each 24-hour period. The nearest fire station is Station# 44 at 6560 Adobe Road. A second fire station, Station #43 at 3834 Lear Avenue, is inactive.

Police Protection

The San Bernardino County Sheriff's Department is responsible for law enforcement in the City. A local police station operates out of City Hall at 6135 Adobe Road. The main police station is located at 6527 White Feather Road in Joshua Tree, approximately 12 miles west of the City.

Schools

The City and the Project area are located within the boundaries of the Morongo Unified School District (MUSD), which provides public school facilities to accommodate students. The MUSD currently operates eighteen schools within its district, which stretches beyond Twentynine Palms to Yucca Valley and Morongo Valley.

Parks

There are a total of four existing parks (i.e. Bucklin Park, Luckie Park, Knott's Sky Park, and Veteran's Park) in the City. Pioneer Park is planned, but not yet constructed. The City's other major recreational facilities include Theatre 29, the Senior Community Center, Parks and Recreation Community Services Building, and Parks and Recreation Administration Building.

Discussion of Impacts

Fire Protection

Less Than Significant Impact. The Project will result in a commercial solar project that will not use or produce significant amounts of combustible materials. In addition, the development plans for the Project will be reviewed by the Fire Department so that they meet Fire Code, access and circulation requirements to assure that the Department can reach all parts of the Project. The GPA and REZ will increase the site's density by 116 residential units, which will marginally increase the need for fire department services at future buildout of the site. Impacts associated with fire suppression for the solar array and increased demand for future fire services are expected to be less than significant, and will be analyzed in the EIR.

Police Protection

Less Than Significant Impact. The development of the proposed solar project will marginally increase the need for police services. The solar project will be unmanned, but will be fenced. The level of security to be provided is not currently known, and will be analyzed in the EIR. Impacts associated with police protection are expected to be less than significant.

The GPA and REZ will increase the site's residential density by 116 residential units, which will marginally increase the need for police services at future buildout of the site. Impacts associated with increased demand for future police services are expected to be less than significant, and will be analyzed in the EIR.

Schools:

Less than Significant Impact. The Project will result in an unmanned commercial solar project. The GPA and REZ will increase the site's density by 116 residential units, which could directly increase the need for additional educational facilities. The EIR will analyze impacts associated with the density increase on educational facilities.

Parks

Less than Significant Impact. The need for additional parkland is primarily based on an increase in population to an area. Given that the proposed Project would increase the site's density by 116 residential units and thus increase the population of the City, the project could potentially burden any parks in the surrounding area beyond capacity by generating additional recreational users. Impacts associated with parks are expected to be less than significant, and will be analyzed in the EIR.

Other Public Facilities

Less than Significant Impact. The solar project will not negatively impact City operations, and may provide a benefit, depending on the benefits provided through the proposed Development Agreement. However, the GPA and REZ will increase the site's density by 116 units, directly increasing the City's future population. Potential impacts the increased density may have on public facilities will be analyzed in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XVI. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

The City of Twentynine Palms operates recreational facilities on 175 acres, including parks, special use areas and passive use areas provided by different sources including the City of Twentynine Palms, the Morongo Unified School District and the Marine Corps Air Ground Combat Center.

Discussion of Impacts

a, b) Less than Significant Impact. The proposed Project does not propose the development of new residential units that would require recreation facilities; however, the GPA and REZ will increase the site's density by 116 single-family units that may increase use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated at future site buildout. The EIR will analyze potential future impacts to recreational facilities.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?			X	

Sources: City of Twentynine Palms General Plan; Google Earth; Technical Advisory on Evaluating Transportation Impacts in CEQA, State of California Governor's Office of Planning and Research, December 2018.

Environmental Setting

The City's Circulation Plan classifies roadways into the following types: 6-Lane Expressway, Arterial, Secondary, and Collector. Those streets not shown on the Circulation Plan are either local or rural local streets and are classified as Non-General Plan streets and are mostly unimproved dirt roads. The General Plan (2012) established a LOS "C" minimum service standard for all new streets within the city.

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. The Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018), and the City has adopted a VMT policy.

Transit service is provided in the City by Morongo Basin Transit. There are no bus stops or routes in the vicinity of the Project site.

Discussion of Impacts

a) **Less Than Significant Impact.** The proposed solar project will not generate daily traffic. Rather, periodic and limited trips for maintenance and repair will be conducted on an as-needed basis. The solar project will not, therefore, impact General Plan level of service policies. The Project will generate construction traffic, from worker trips to and from the site, which will be analyzed in the EIR.

The proposed GPA and REZ will increase the site's net residential density, which could increase traffic at future buildout. The EIR will analyze potential impacts from this increased density and how it may affect circulation in the City.

Alternative Transportation Planning

Morongo Basin Transit Authority (MBTA) provides transit service in the Morongo Basin, including the City of Twentynine Palms. The solar project will be unmanned, and will require infrequent visits from Project employees only for maintenance and repair. These trips are not expected to be on transit services. The proposed GPA and REZ will increase the site's residential density, but does not propose changes that will conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. No project-related impact is anticipated and no further discussion of this issue is required in the EIR.

b) **Less Than Significant Impact.** The City VMT guidelines include thresholds to screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing. The EIR will analyze the Project on the basis of the City's policy. It is expected that the Project will have a less than significant impact on VMT, and this will be confirmed in the EIR's analysis.

c) **No Impact.** The Project will result in solar panel racks in rows, with access drives between them. One access point, at Samarkand Drive (extended), will be provided onto a driveway that exits onto Two Mile Road at the southern boundary of the site. The infrequent maintenance and repair trips are not expected to increase hazards or create a dangerous intersection, because the City will condition the Project to build its access to City standards and at a 90 degree angle to Two Mile Road. No incompatible uses are proposed, and no project-related impact is anticipated. No further discussion of this issue is required in the EIR.

d) **No Impact.** The proposed Project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Project operation would not change any existing roads, including areas provided for emergency access. Prior to construction, both the Fire Department and Sheriff Department will review the Project site plan to ensure safety measures are addressed, including emergency access. While the Project will increase the site's net residential density, it will not change or interfere with long-term emergency response or emergency evacuation plans for the area.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XVIII. TRIBAL RESOURCES-- Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	X			
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe	X			

Source: City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

As discussed in the Section V, Cultural Resources, the Mojave Desert, including the City of Twentynine Palms has been home to the Serrano and the Chemehuevi Native Americans for centuries. Today, most Serrano descendants are affiliated with the San Manuel and the Morongo Indian Reservations, while the Chemehuevi are divided among the Chemehuevi, the Colorado River, and the Morongo Reservations.

The City and surrounding areas contain significant cultural resources to the Native American people which are considered non-renewable resources because they provide important information about the past and are of high cultural value to the tribes.

Discussion of Impacts

a, b) Potentially Significant Impact. The Project area occurs in an area with no currently known Tribal Resources, but such resources have been identified throughout the City. The City will conduct Tribal Consultation under the requirements of SB 18 and AB 52, and will determine the level of impact through these consultations. The EIR will address Tribal Resources and determine whether mitigation measures are required to reduce impacts to less than significant levels.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Source: Twentynine Palms General Plan.

Environmental Setting

Domestic Water (please also see Hydrology and Water Resources)
The proposed Project is located within the Twentynine Palms Water District (TPWD) boundaries for domestic water services. The District's water supply source is 100 percent groundwater produced from District-owned and operated wells. The District provides water service to approximately 6,800 households in their water service area (Twentynine Palms Water District 2015 Urban Water Management Plan).

Wastewater Treatment
The only Wastewater Treatment Plant (WWTP) in the region is located at the Marine Corps Air Ground Combat Center (MCAGCC). The City, including the Project area, does not have a sanitary sewer system and currently operates with septic tanks.

Flood Control/Drainage
The San Bernardino County Flood Control District (SBFCD) is responsible for managing regional drainage within and in the vicinity of Twentynine Palms. The City works with SBFCD to manage local drainages in the City, which are divided between well-defined

drainage courses (some have been channelized) and areas of wide sheet flow. Development that may alter the direction of flow onsite is conditioned per standard San Bernardino County practices to maintain the existing site drainage patterns at inlets and outlets.

Solid Waste

Burrtec Waste Industries provides solid waste pick up and disposal, as well as recycling services in the City. Solid waste disposal and landfill siting is handled by the County of San Bernardino, Solid Waste Management Division. The Project will utilize shared trash bins for waste removal.

Other Utilities

The electrical energy to the City is provided by Southern California Edison (SCE). Natural gas service is provided to the City by Southern California Gas Company (SoCalGas). Telephone service is provided by a number of companies, including both land lines and cellular services.

Discussion of Impacts

a) **Less than Significant Impact.** As discussed under Hydrology, above, the unmanned commercial solar project will not require the construction of water, wastewater treatment or storm drainage facilities. It will expand electrical service for the benefit of future development in SCE's service area, but these impacts will be addressed categorically in the EIR as described in this Initial Study. The solar project will not use natural gas and will not require the expansion of this service. The solar project will require telecommunications for monitoring services, but these are available in the vicinity of the Project site. The proposed GPA and REZ will increase the site's residential density and thus increase future demand for water, wastewater treatment, electric power, natural gas, and telecommunications facilities. Therefore, the need for the expansion or relocation of utilities or service systems will be analyzed in the EIR.

b) **Less Than Significant Impact.** The solar project will not require on-site water supplies, and proposes to use trucked-in water periodically to clean the solar arrays. The GPA and REZ will increase the site's net residential density that will increase the demand for future water services. The EIR must quantify the potential water use and assure that the Project will not impact the water supply.

c) **No Impact.** The solar project will not require septic or sanitary sewer service, and any need for temporary service will be provided by portable toilets. There is no regional sanitary sewer service, and no treatment plant in the City. Future buildout of the site under the proposed RS-1 land use designation would be subject to the same regulations and standards relating to septic or sanitary sewer service. The Project will not impact sewer capacity, and no further discussion of this issue will be required in the EIR.

d, e) **Less Than Significant Impact.** The solar project will generate limited solid waste during construction, and also during operation for disposal of repaired or damaged components, and similar maintenance waste. The amount of waste is not currently known. The collection and disposal of solid waste will conform to applicable federal, State, and local plans and regulations, including AB 939 (Integrated Waste Management Act) that local jurisdictions divert at least 50 percent of all solid waste. It is expected the proposed Project would have a less than significant impact in terms of complying with federal, state, and local statutes and regulations related to solid waste. This issue will be analyzed, and to the extent possible quantified in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

Sources: Twentynine Palms General Plan; Fire and Resources Assessment Program (FRAP) maps, California Department of Forestry and Fire Protection.

Environmental Setting

Wildfires can occur in undeveloped areas and spread to urban areas where the landscape and structures are not designed and maintained to be ignition resistant. A wildland-urban interface is an area where urban development is located in proximity to open space or “wildland” areas. The potential for wildland fires represents a hazard where development is adjacent to open space or within close proximity to wildland fuels or designated fire severity zones.

The California Department of Forestry and Fire Protection (Cal Fire) has mapped areas of significant fire hazards in the state through its Fire and Resources Assessment Program (FRAP).

The General Plan identifies the project site as being in a Local Responsibility Area and a Moderate Fire Hazard Zone. The site is not located adjacent to forested areas, and the slopes of the hills surrounding the City do not support significant vegetation.

Discussion of Impacts

a)-d) No Impact. The Project area is not located adjacent to a state responsibility area or a very high fire hazard severity zone. Because the City, including the proposed Project, is not at high risk for wildfire, it is also not at risk for spread of wildfire, or for slope instability, flooding or landslides. Finally, there is no need for installation or maintenance of infrastructure that could exacerbate fire risk. No impacts associated with wildfire will result from development of the proposed Project, and no further discussion of this issue will be required in the EIR.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XXI MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X			
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	X			
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Discussion of Impacts

a) **Potentially Significant Impact.** As described above, the proposed Project has the potential to impact biological (special status species, migratory birds and jurisdictional waters) resources. The EIR must consider these impacts and, if such impacts are determined to be significant, determine whether feasible mitigation measures are available to reduce such impacts to less than significant levels. As regards cultural resources, the Project's impacts will be analyzed, and mitigation measures are believed to be available to reduce any potential impacts to less than significant levels.

b) **Potentially Significant Impact.** The EIR must consider the Project's cumulative impacts. When considered in the framework of General Plan build out, the Project and other projects could have significant impacts on several resource areas. The EIR will analyze cumulative impacts and determine whether mitigation measures are necessary.

c) **Less Than Significant Impact.** As described above, the Project will not have significant impacts on human beings. Air quality and noise impacts are expected to both be less than significant, and the solar project will generate only sporadic

additional vehicle trips. However the increased residential density resulting from the GPA and REZ could potentially impact human beings, and will therefore be analyzed in the EIR.

Responses to Notice of Preparation

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

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Laurena Bolden
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NATIVE AMERICAN HERITAGE COMMISSION

February 27, 2024

Keith Gardner
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms CA 92277

Re: 2024021042, E-Group PS Solar Project, San Bernardino County

Dear Mr. Gardner:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Murphy.Donahue@NAHC.ca.gov.

Sincerely,

Murphy Donahue

Murphy Donahue
Cultural Resources Analyst

cc: State Clearinghouse

Subject: FW: CUP23-000009 NOP
Date: Tuesday, March 5, 2024 at 12:25:27 PM Pacific Standard Time
From: Nicole Criste <ncriste@terranovaplanning.com>
To: Kimberly Cuza <kcuza@terranovaplanning.com>
Attachments: image001.png

Kim,

Please start an NOP comment folder for the 29 Palms Solar EIR, and include this email in it.

Nicole Sauviat Criste
Principal

TERRA NOVA PLANNING & RESEARCH, INC.®
42635 Melanie Place, Ste 101
PALM DESERT, CA. 92211
(760) 341-4800
FAX#: 760-341-4455
E-Mail: ncriste@terranovaplanning.com

From: Keith Gardner <kgardner@29palms.org>
Date: Tuesday, March 5, 2024 at 11:09 AM
To: Nicole Criste <ncriste@terranovaplanning.com>
Cc: "Smith, Robert M." <Robert.Smith@klgates.com>
Subject: FW: CUP23-000009 NOP

FYI

From: Godown, Brett <Brett.Godown@airports.sbcounty.gov>
Sent: Tuesday, March 5, 2024 8:35 AM
To: Keith Gardner <kgardner@29palms.org>
Cc: Snelgrove, Maureen <Maureen.Snelgrove@airports.sbcounty.gov>
Subject: CUP23-000009 NOP

CAUTION: THIS EMAIL ORIGINATED OUTSIDE THE ORGANIZATION. DO NOT CLICK LINKS OR OPEN ATTACHMENTS UNLESS YOU HAVE VERIFIED THE SENDER AND KNOW THE CONTENT IS SAFE. CAUTION

Good morning, Keith,
I wanted to provide a comment on CUP23-000009 NOP. In evaluation of potential impacts, I. Aesthetics, d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area; it identifies a Potentially Significant Impact. During the study, the County of San Bernardino, Department of Airports requests that the solar arrays be designed in a manner to mitigate potential glare or negative impacts to the 29 Palms Airport. The project site is

located on the extended centerline for the primary runways (08-26).

Sincerely,

Brett J. Godown
Director
Department of Airports
Phone: 909-387-8810 Admin
Fax: 909-387-8815
268 Hospitality Lane, Suite 302
San Bernardino, CA 92408-0831

Our job is to create a county in which those who reside and invest can prosper and achieve well-being.
www.SBCounty.gov

San Bernardino County Confidentiality Notice: This communication contains confidential information sent solely for the use of the intended recipient. If you are not the intended recipient of this communication, you are not authorized to use it in any manner, except to immediately destroy it and notify the sender.

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

March 14, 2024

Keith Gardner, Community Development Director
Planning/Building & Safety
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277

Project: Initial Study E-Group Solar - Twentynine Palms

Dear Mr. Gardner:

The Mojave Desert Air Quality Management District (District) has received a request for comments on the proposed E-Group Solar Project (CUP23-000009; GPA23-000001; DCA 23-000016) Initial Study. The applicant proposes the development of a commercial solar array on the northern 184± acres of a 477± acre site that is currently vacant, undeveloped land. The 184-acre solar array portion of the site is referred to herein as the "solar project." The solar project will have the ability to generate 50 megawatts (MW) of solar power. The solar project will include rows of 720 ground-mounted solar panel racks each 104 feet wide and 252 feet long, separated by 10-foot-wide service/maintenance drives. In total, 160,000 solar panels will be installed on the site. The panels will be mounted on pilons, at a fixed 21-degree angle, facing south. A total of 170 inverters will be connected to the panels and consolidated throughout the project. Power generated by the Project will be routed to on-site transformers, and then via an underground line routed to the existing Southern California Edison Carodean substation located on the south side of Two-Mile Road, east of Canyon Road. The interconnection line will extend from the solar project's south boundary down a new driveway (north of the existing Easy Street) to Two Mile Road, then westerly on Two Mile Road to the substation. No residential development is proposed as part of the Project

We have reviewed the project as proposed and based on the information available to us at this time, the District requires that the owner/operator obtain Solar Permits as listed in District Rule 302 and a Dust Control Plan (DCP) for the planned solar facility. The most current Dust Control Plan Requirements and Dust Control Plan Submission Form are available at https://www.mdaqmd.ca.gov/permitting/compliance-forms.

Other District requirements include:

- Signage compliant with Rule 403 Attachment B shall be erected at each project site entrance not later than the commencement of construction.

- 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.

- Obtain District permits for any miscellaneous process equipment that may not be exempt under District Rule 219 including, but not limited to: Internal Combustion Engines with a manufacture's maximum continuous rating greater than or equal to 50 brake horsepower.

- Comply with all applicable provisions listed in Rule 403 – *Fugitive Dust Control.*

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 1846, or Bertrand Gaschot at extension 4020.

Sincerely,



Chris Anderson
Planning and Air Monitoring Supervisor

CJA/bg

From: Gary Loiselle <masterdivergary@yahoo.com>
Sent: Saturday, March 23, 2024 5:53 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Notice of Preparation & Initial Study for the E-Group PS Solar Project

CAUTION: THIS EMAIL ORIGINATED OUTSIDE THE ORGANIZATION. DO NOT CLICK LINKS OR OPEN ATTACHMENTS UNLESS YOU HAVE VERIFIED THE SENDER AND KNOW THE CONTENT IS SAFE. CAUTION

Hello,

I am writing this email strongly apposing the E-Group PS Solar Project. We already have two large solar farms in Desert Heights & these eyesores have had a negative impact.
I live in Desert Heights, when the winds come up I see dust clouds from these existing Solar farms blanketing the sky, reducing visibility & covering everything .
These Solar projects destroy the environment & view. These developments blade the desert removing every living & non living thing holding the soil down. The way they clear off everything killing natural vegetation, displacing animals & create a death zone of nothing. Its very depressing.
This project would be seen from highway 62 & property value in the area would drop from this proposed Solar project.

I love this area & the proposed site I know very well as I live near there. The 184 acre site has quite a few stands of very old large Yucca, Cat Claw Acacia, Willows & Mesquite. I've seen many Cottontails, Jackrabbits, Quail, Iguana's, Chuckwalla's, Roadrunners, red Tail Hawks, Buzzards, Dove, Finch, Coyote, Thrashers, Bobcats, Fox's, Round tail ground & Antelope squirrels to name a few. Also it is not very flat but rather dynamic with deep cut washes & a sloping change in elevation which does not lend itself to a solar project without seriously altering the landscape.

There has to be other better places more out of site & dry lake beds where there would be no need to clear off & kill everything.

29 Palms an Oasis of Solar Farms? Welcome to the gateway city of the Joshua Tree National Park?

Sincerely

Gary Loiselle
760-362-1245
714-342-1082 Cell
1529 Shoshone Valley Rd.
29 Palms, Ca. 92277

From: chris tiffany <chrisjotiffany@gmail.com>
Sent: Sunday, March 24, 2024 4:17 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Opposiiton to Solar Project

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I just emailed my letter in opposition to the proposed solar project in 29 Palms.

I reallize I did not include my address which may be required for public comment:

Chris Tiffany
7054 Sherman Road
29 Palms, CA 92277
(805)588-8913

From: chris tiffany <chrisjotiffany@gmail.com>
Sent: Sunday, March 24, 2024 4:15 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Proposed Solar Project

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Community Development Director, Keith Gardner
6136 Adobe Road
City Hall, 29 Palms, CA 92277

Please submit for public comment. Unfortunately, I am not in town to present at the upcoming meeting in person.

I am writing in strong opposition to the solar project proposed by E-Group PS, LLC.

It is my understanding that the City's General Plan contains a moratorium on solar plants. I believe this moratorium should stand in perpetuity.

This type of project requires excessive grading that will disturb the sensitive desert soils forever, undermining air quality, habitat, unparalleled desert views and quality of life for all of us who call 29 Palms our home, as my family has since 1953. In fact, we moved here, like so many others, because of the High Desert's clean air and open space. This move saved my older sister's life, as she was dying from severe asthma. She still is home in 29 Palms home and continues to thrive here asthma-free.

These huge solar projects throw harmful fine particulate into the air, causing severe health problems. Anyone who has driven by the atrocious solar plants in Desert Center or south of Las Vegas has witnessed the harm they cause. Soil erosion, habitat loss, destruction of the view shed, and dust storms. All unnecessary for the sake of profit for a corporation who could care less about the unique quality of life that the desert offers.

Yes, desert communities should be clamoring for clean available solar energy, but only the use of solar panels placed on existing and new homes and buildings. Lead the way, City of 29 Palms. Say no way to this destructive project. You can not put a dollar sign on the price of good health, especially when you can no longer breathe.

Sincerely,

Chris Tiffany
chrisjotiffany@gmail.com

From: Mary Kay Sherry <mksherry23@gmail.com>
Sent: Monday, March 25, 2024 11:50 AM
To: Keith Gardner <kgardner@29palms.org>
Subject: Proposed solar farm

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Mr. Keith Gardner
Community Development Director

As I'm sitting here writing this email the wind is howling and I shudder to think what it will be like at many of our homes if this solar project becomes a reality. I get enough sand as it is but those of us to the east of Sunrise are right in the path and our quality of life will change forever to the negative.

Many things were discussed at both the Wednesday and Thursday meeting. Although I'm not one of the "esteemed residents" E-Group invited to the Holiday Inn on Wednesday I chose to attend. I used to live on Noel's Knoll and was invited by my former neighbors.

As I said at Thursday's meeting, my husband Charlie and I take our Jeep out to the proposed site almost every day and I walk up and down the washes. It's a beautiful and peaceful area. We love it when we spot one of the many desert tortoises. Did you know that tortoises have good vision and smell and know their territory well? They live between 50-100 years and rarely move more than a couple of miles from their birth place and are intimately familiar with the resources within their territory. From "The Nature Conservancy" at www.nature.org they tell us one of the biggest threats facing the desert tortoise is habitat loss. E-Group told us in the Wednesday meeting they plan to translocate them! These beautiful creatures are already a threatened species and they don't thrive when moved from their "home". Habitat fragmentation is a real problem as well. Disruption of their home area makes it difficult for them to find one another to breed. Have you seen what the USMC base has done to translocate the tortoises on the various ranges they use? Read https://www.defense.gov/News/News-Stories/Article/Article/1152478/marines-relocate-desert-tortoises. It entails almost four years' worth of surveys, with the environmental analysis dating back to 2008. They did health assessments, identified all the animals within the translocation areas, placed radio transmitters on them and determined suitable locations in which to distribute them to ensure survivorship and assimilation. They pointed out it's not as simple as picking them up and moving them elsewhere. What plan does E-Group have to accomplish this task? I spoke to a friend yesterday who was a USMC lawyer involved with the translocation. He said it's an intense process and takes years and mentioned the EIR the city does will find that tortoises live in that area. When he retired from the USMC he became an environmental lawyer in Utah and later became a district court judge. He suggested I contact the Federal Fish and Wildlife Service, the Natural Resources Defense Council (NRDC) and the Sierra Club, which I will do..

Pat Flanagan, who was at Thursday's meeting, said she'd share with you the information she's obtained about the soil. I have many of her documents but I'm certain she'll share it all with you. This project will disrupt a large portion of that desert crust that protects us from some blowing sand. E-Group told us Wednesday they anticipate 30-40% grading, clearing and filling.

As I stated Thursday I'm concerned about water usage as they grade and prepare the site and plant whatever they intend to plant once it's completed. My lawyer friend also mentioned that no matter what E-Group tells us, vegetation will not grow under solar panels in the desert.

I hope our City Council and Planning Commission will stand firm in upholding the city code that forbids a solar farm within city limits. Don't be swayed by any wonderful bonus packages for the city E-Group is promising. I am against this project and I'd rather tell them NO and let the state make the final decision. E-Group is telling us if the city refuses they'll take it to the state and it will be built . I say let them take it to the state.

Sincerely,
Mary Kay Sherry

From: Adriene Jenik <adriene.jenik@gmail.com>
Sent: Tuesday, March 26, 2024 10:47 AM
To: Keith Gardner <kgardner@29palms.org>
Subject: public comment - 29 Palms Solar project

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Hello Community Development Director Gardner,

I understand that you are receiving initial public comments related to the proposed solar project in 29 palms.
I am a resident of 29 Palms (since 1996) and was an early adaptor of solar and wind. In the late 90s I worked with Mark Heinz, a local solar installer to install a small wind turbine and solar panels at my desert compound; and more recently I have installed rooftop solar on a new building on my property. Regenerative energy sources like solar are indeed our future, and it is exciting that we have a plentiful resource like this to pull from in our town.

I mention these points as context for my strong opposition to this proposed solar project. I am concerned that residentially zoned areas are being converted to support business interests (as with glamping project and now this project) as there are many many other non-residential sites both within and beyond city borders that can be considered for such development. Rooftop solar is an excellent way to provide energy to homes within residential areas, and has not been supported as much as it should be in my opinion. We have local capable contractors who can do this work. So my first point is that residential zoned lands should be kept zoned residential unless there is an immediate recognized and celebrated benefit to the local community.

My second point is related to the siting of desert tortoises on the land in question. Land east of my home used to house many desert tortoises, but due to the drought the population seems to have tapered off. To have sited tortoises at a spot is an important ecological resource; relocations are difficult and often take decades to reestablish.

Thirdly, as other have noted, the grading of the soil represents a hazard - to both the health of the cryptobiotic organisms that have developed over hundreds of years, and to the people who live downwind. The dust blowing from the recently erected solar array off Indian Canyon in Palm Springs is just one example where blowing wind (which we have plenty of) and graded desert results in hazards to health and welfare.

My fourth point of opposition is related to the bullying tone of the letter of intent from E-group. Even though they say now that they want to work with the community, threatening to go around the city statutes, which have been developed by elected officials, shows that they assume they have the power to do what they want. It leaves a sour taste in my mouth and makes me wonder what good are local laws; reducing my sense of agency as a citizen.

Regenerative energies offer amazing opportunities for us here in sunny climes. However, to see them developed at the expense of less powerful and monied communities like ours serves to repeat the sad lessons of the development of fossil fuels - which have had negative health impacts on low-income and non-White communities across the country. Yes we need to develop solar, but we have other opportunities to do so in a way that truly benefits everyone.

Thank you for adding my comments to those who have already spoken out about this proposed development.

Adriene Jenik
29 Palms

Subject:	FW: CDFW comments - E- Group PS Solar NOP
Date:	Wednesday, March 27, 2024 at 5:24:28 PM Pacific Daylight Time
From:	Keith Gardner <kgardner@29palms.org>
To:	Kimberly Cuza <kcuza@terranovaplanning.com>
CC:	Nicole Criste <ncriste@terranovaplanning.com>, Smith, Robert M. <Robert.Smith@klgates.com>
Attachments:	2024021042_NOP_DEIR_City_of_Twentynine_Palms_E-Group_PS_Solar.docx.pdf

From: Banks, Rose@Wildlife <Rose.Banks@wildlife.ca.gov>
Sent: Wednesday, March 27, 2024 3:45 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: CDFW comments - E- Group PS Solar NOP

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Hello Mr. Gardner,

Please see CDFW's comments on the NOP of a DEIR for the E-Group PS Solar Project attached.

Thank you,
Rose

Rose Banks
Senior Environmental Scientist (Specialist)
California Department of Fish and Wildlife—Inland Deserts Region
Habitat Conservation, Renewable Energy Unit
787 N. Main Street, Suite 220
Bishop, CA 93514
(760) 218-0022 cell
Rose.Banks@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

March 27, 2024
Sent via email

Keith Gardner, Community Development Director
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277
Kgardner@29palms.org

Notice of Preparation of a Draft Environmental Impact Report
E-Group PS Solar Project (Project)
State Clearinghouse No. 2024021042

Dear Mr. Gardner:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation of a Draft Environmental Impact Report (DEIR) from the City of Twentynine Palms (Lead Agency) for the 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, we appreciate 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.

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 (Fish & G. Code, §§ 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 need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 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) (Fish & G. Code, § 2050 et seq.), the Project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The Project is located in the northwestern portion of the City of Twentynine Palms at the northwest corner of Two Mile Road and Noel Knolls Road on Assessor's Parcel Numbers 0612-201-01 and 0612-201-05.

The Applicant proposes the development of a commercial solar array on approximately 184 acres of an approximately 477-acre site. The Project will have the ability to generate 50 megawatts (MW) of solar power, which will be routed to on-site transformers, and then via an underground line routed to the existing Southern California Edison Carodean

[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.

substation located on the south side of Two Mile Road, east of Canyon Road. The Project will require both onsite and offsite improvements to connect to the electric grid. Onsite improvements will require the installation of a driveway and underground power lines, extending one-half mile south from the Project to connect to the intersection of Two Mile Road north of Easy Street. Offsite improvements will extend the underground powerlines westerly in Two Mile Road one-half mile to the existing SCE Carodean substation.

Discretionary approvals include two General Plan Amendments, two Rezones, Development Code Amendment, Conditional Use Permit, and Development Agreement.

COMMENTS AND RECOMMENDATIONS

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, direct and indirect impacts on fish and wildlife (biological) resources.

CDFW recommends that the forthcoming DEIR address the following:

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the project, the DEIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with particular emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats.

CDFW recommends that the DEIR specifically include:

1. An assessment of the various habitat types located within the project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al. 2009[2]). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the project. CDFW's California Natural Diversity Database (CNDDB) in Sacramento should be contacted at (916) 322-2493 or CNDDB@wildlife.ca.gov to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the proposed Project.

   Please note that CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the project site.

3. A complete, *recent* inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish & G. Code, § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a

[2] Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.

4. A thorough, recent, floristic-based assessment of special status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018[3]).

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]).

6. A full accounting of all open space and mitigation/conservation lands within and adjacent to the Project.

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The DEIR should provide a thorough discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources as a result of the Project. To ensure that Project impacts to biological resources are fully analyzed, the following information should be included in the DEIR:

1. A discussion of potential impacts from lighting, noise, human activity (e.g., recreation), defensible space, and wildlife-human interactions created by zoning of development projects or other project activities adjacent to natural areas, exotic and/or invasive species, and drainage. The latter subject should address Project-related changes on drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

2. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the project footprint, such as nearby public lands (e.g., Sonny Bono National Wildlife Refuge, Salton Sea National Wildlife Refuge, Imperial National Wildlife Refuge) , open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Natural Community Conservation Plan, or other conserved lands).

3. An evaluation of impacts to adjacent open space lands from both the construction of the Project and any long-term operational and maintenance needs.

4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. Please include all potential direct and indirect Project related impacts to riparian areas, wetlands, vernal pools, alluvial fan habitats, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and other sensitive habitats, open lands, open space, and adjacent natural habitats in the cumulative effects analysis. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Alternatives Analysis

[3] California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plan Populations and Sensitive Natural Communities. State of California, Natural Resources Agency. Available for download at: https://wildlife.ca.gov/Conservation/Plants

CDFW recommends the DEIR describe and analyze a range of reasonable alternatives to the Project that are potentially feasible, would "feasibly attain most of the basic objectives of the Project," and would avoid or substantially lessen any of the Project's significant effects (CEQA Guidelines § 15126.6[a]). The alternatives analysis should also evaluate a "no project" alternative (CEQA Guidelines § 15126.6[e]).

Avoidance, Minimization, and Mitigation Measures for Project Impacts to Biological Resources

The DEIR should identify mitigation measures and alternatives that are appropriate and adequate to avoid or minimize potential impacts, to the extent feasible. The Lead Agency should assess all direct, indirect, and cumulative impacts that are expected to occur as a result of the implementation of the Project and its long-term operation and maintenance. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Fully protected species may not be taken or possessed at any time. Project activities described in the DEIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the DEIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the Lead Agency include in the analysis how appropriate avoidance, minimization, and mitigation measures will reduce indirect impacts to fully protected species.

2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2009). The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from project-related direct and indirect impacts.

3. *California Species of Special Concern* (CSSC): CSSC status applies to animals generally not listed under the federal Endangered Species Act or the CESA, but which nonetheless are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. CSSCs should be considered during the environmental review process. CSSC that have the potential or have been documented to occur within or adjacent to the project area, including, but not limited to: burrowing owl (*Athene cunicularia*), Le Conte's thrasher (*Toxostoma lecontei*), pallid bat (*Antrozous pallidus*), and red-diamond rattlesnake (*Crotalus ruber*).

4. *Mitigation*: CDFW considers adverse project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the DEIR should include mitigation measures for adverse project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, onsite habitat restoration and/or enhancement, and preservation should be evaluated and discussed in detail. Where habitat preservation is not available onsite, offsite land acquisition, management, and preservation should be evaluated and discussed in detail.

   The DEIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

   If sensitive species and/or their habitat may be impacted from the Project, CDFW recommends the inclusion of specific mitigation in the DEIR. CEQA Guidelines section 15126.4, subdivision (a)(1)(8) states that formulation of feasible mitigation measures

should not be deferred until some future date. The Court of Appeal in *San Joaquin Raptor Rescue Center* v. *County* of *Merced* (2007) 149 Cal.App.4th 645 struck down mitigation measures which required formulating management plans developed in consultation with State and Federal wildlife agencies after Project approval. Courts have also repeatedly not supported conclusions that impacts are mitigable when essential studies, and therefore impact assessments, are incomplete *(Sundstrom* v. *County* of *Mendocino* (1988) 202 Cal. App. 3d. 296; *Gentry* v. *City* of *Murrieta (1995)* 36 Cal. App. 4th 1359; *Endangered Habitat League, Inc.* v. *County* of *Orange* (2005) 131 Cal. App. 4th 777).

CDFW recommends that the DEIR specify mitigation that is roughly proportional to the level of impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). The mitigation should provide long-term conservation value for the suite of species and habitat being impacted by the Project. Furthermore, for mitigation measures to be effective, they need to be specific, enforceable, and feasible actions that will improve environmental conditions.

5. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be initiated in the near future in order to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate.

   Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project; examples could include retention of woody material, logs, snags, rocks, and brush piles.

6. *Nesting Birds and Migratory Bird Treaty Act:* Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Fish and Game Code sections 3503, 3503.5, and 3513 afford protective measures as follows: Fish and Game Code section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto. Fish and Game Code section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.

   CDFW recommends that the DEIR include the results of avian surveys, as well as specific avoidance and minimization measures to ensure that impacts to nesting birds

do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: project phasing and timing, monitoring of project-related noise (where applicable), sound walls, and buffers, where appropriate. The DEIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the project site. If pre-construction surveys are proposed in the DEIR, the CDFW recommends that they be required no more than three days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner.

7. *Moving out of Harm's Way:* To avoid direct mortality, CDFW recommends that the lead agency condition the DEIR to require that a CDFW-approved qualified biologist be retained to be onsite prior to and during all ground- and habitat-disturbing activities to move out of harm's way special status species or other wildlife of low or limited mobility that would otherwise be injured or killed from project-related activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise by injured or killed, and individuals should be moved only as far a necessary to ensure their safety (i.e., CDFW does not recommend relocation to other areas). Furthermore, it should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.

8. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species as studies have shown that these efforts are experimental in nature and largely unsuccessful.

California Endangered Species Act (CESA)

Based on review of CNDDB and/or knowledge of the Project site and general area, CDFW is aware that desert tortoise (*Gopherus agassizii*), listed as threatened and a candidate as endangered under CESA, has the potential to occur onsite. CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CDFW recommends that a CESA ITP be obtained if the Project has the potential to result in "take" (Fish & G. Code, § 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the project. CESA ITPs are issued to conserve, protect, enhance, and restore State-listed CESA species and their habitats.

CDFW encourages early consultation, as significant modification to the proposed Project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. The California Fish and Game Code requires that CDFW comply with CEQA for issuance of a CESA ITP. CDFW therefore recommends that the DEIR addresses all Project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of CESA.

Lake and Streambed Alteration Program

Based on review of material submitted with the NOP and review of aerial photography, multiple drainage features traverse the site. Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: Substantially divert or obstruct the natural flow of any river, stream or lake; Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or Deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

Upon receipt of a complete notification, CDFW determines if the proposed Project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake

and Streambed Alteration (LSA) Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify your Project that would eliminate or reduce harmful impacts to fish and wildlife resources.

CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code § 21065). To facilitate issuance of an LSA Agreement, if necessary, the DEIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. 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 https://www.wildlife.ca.gov/Conservation/LSA/Forms.

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.

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

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP of a DEIR to assist the City of Twentynine Palms in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Rose Banks, Senior Environmental Scientist (Specialist) at (760) 218-0022 or Rose.Banks@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Magdalena Rodriguez
938A012E7285407...

For
Alisa Ellsworth
Environmental Program Manager

ec: Office of Planning and Research, State Clearinghouse, Sacramento
State.Clearinghouse@opr.ca.gov

Subject: FW: In Opposition to the E-Corp Solar Farm
Date: Wednesday, March 27, 2024 at 5:21:55 PM Pacific Daylight Time
From: Keith Gardner <kgardner@29palms.org>
To: Kimberly Cuza <kcuza@terranovaplanning.com>
CC: Nicole Criste <ncriste@terranovaplanning.com>, Smith, Robert M. <Robert.Smith@klgates.com>
Attachments: Looking North from Samarkand.jpg

FYI

From: Kurt Keppeler <kurtkeppeler@gmail.com>
Sent: Wednesday, March 27, 2024 4:09 PM
To: Keith Gardner <kgardner@29palms.org>
Cc: Clare Haggarty <clarehag@gmail.com>
Subject: In Opposition to the E-Corp Solar Farm

CAUTION: THIS EMAIL ORIGINATED OUTSIDE THE ORGANIZATION. DO NOT CLICK LINKS OR OPEN ATTACHMENTS UNLESS YOU HAVE VERIFIED THE SENDER AND KNOW THE CONTENT IS SAFE. CAUTION

Dear Keith Gardner,
I would like to voice my strong opposition to the proposed E-Corp Solar Project. I have a home just to the east of the proposed development, but my concerns extend to the entire community.

Contrary to what the developers claim, the proposed site is not remotely flat. It is rough and undulating terrain with multiple rocky outcroppings and arroyos. The developers have admitted they would have to grade 30-40% of the terrain. The potential ramifications of this are plain to see: persistent dust storms that would sweep to the east, potentially cloaking the entire community in unhealthy air. Just on that grounds alone I believe it is extremely irresponsible to propose such a development, and additionally so to approve it.

Another great concern for me is the loss of flora and fauna habitat. The aforementioned “grading” would eliminate multiple species of fauna: Burrowing owls, desert tortoises (which I have seen with my own eyes), desert fox, rabbits, jackrabbits, roadrunners, quail, and more. The loss of flora (specifically ancient creosote) and the disruption of the biological crust that holds the soil would cause permanent damage to a valued ecosystem.

The high desert communities to the north of JTNP are prized for their authentic desert settings. It’s what drives so many people to own homes here and countless others to visit (with their dollars spent helping to keeping the area businesses vital). Please don’t let these out of town developers plunder this for their own economic gains.

One thing I’d also want to note: the developers, when pressed, admitted that the main reason they picked this particular site was due to its proximity to an electric sub-station. Is this really a good reason for the City of Twentynine Palms to break its sound promise to keep industrial scale solar facilities out? So that the developers can save some cash? I trust not, and am hopeful the powers that be will agree.

Thank You Very Much!
Kurt Keppeler

PS: Attaching a photo of the land in question. This is looking north from Samarkand over the proposed Solar location. Which the developers call “flat.”



From: **Hollis Clark** get.hollis.clark@gmail.com
Subject: Concerns about Two Mile Solar Project
Date: March 28, 2024 at 7:41 AM
To: Keith Gardner kgardner@29palms.org

HC

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Hello,

My name is Hollis Clark and I am a resident of unincorporated Joshua Tree. I have a Bachelor Degree in Ecological Economics and I work as a naturalist guide in Joshua Tree National Park.

The resources devoted to this project would serve the community of 29 Palms and surrounding areas far more if they were used to subsidize rooftop solar and batteries retrofitted into our already built environment. The advantages of the rooftop method are obvious:

- protecting critical habitat for endangered and threatened flora and fauna as well as our beloved cryptobiotic soil crust
- curbing development prevents air and water pollution caused by dust
- onsite power+storage is far more efficient and reduces shrink across distance
- onsite power+storage makes our communities more resilient to disasters and other power disruptions by reducing mass reliance on the public grid.

The welfare of our community should come before the short term profit for these developers. You and I both know what it looks like for big money to come into this area and see dollar signs, only to be met with the harsh realities of Mother Nature.

We live here because we choose less convenience so we can experience the humbling lessons our environment has to teach. When addressing our need to reduce our carbon emissions, we must not rob Peter to pay Paul. The evidence shows how big corporations are manipulating our bureaucratic processes to benefit shareholders, no matter how “green” their pitch is. Out here, nature is brown, not green, and that’s how we like it.

If the state of California wants to lead the world toward a more sustainable way of life, we must acknowledge that the ONLY reason we are not already focusing on retrofitting our built environment is because it is more profitable for SCE and the developers to scrape the living matter (that takes thousands of years to regenerate) off a piece of land that is out of sight and out of mind for 99.9% of people. It is our duty as the .1% to push back and stand up for the creatures and plants that do not get a say.

Thank you for taking the time to read this, and I truly hope we can turn our focus to a more sensible and community-oriented approach to moving away from fossil fuels.

Sincerely,
Hollis Clark
(509)714-6252

From: Mary Effron <maryeffron@verizon.net>
Sent: Thursday, March 28, 2024 10:16 AM
To: Keith Gardner <kgardner@29palms.org>
Subject: Harmony Solar Farm

CAUTION: THIS EMAIL ORIGINATED OUTSIDE THE ORGANIZATION. DO NOT CLICK LINKS OR OPEN ATTACHMENTS UNLESS YOU HAVE VERIFIED THE SENDER AND KNOW THE CONTENT IS SAFE. CAUTION

Dear Mr. Gardner,
I am writing you to express my opposition to this solar farm. This project has no benefit to the residents who live nearby and in 29. The power generated will go back to Edison and the only people who actually benefit are the investors who as you know, are not residents of this community. Who pays for this? The people of 29 who have to live with this environmental degradation and stare at the unsightly glaring panels that displace our subtle wildlife and ruin the ecosystem of plants and soil that have been there for ages.

Solar farms are money makers for the investors and a nightmare for anyone living near by. By the way, why not get creative and return to offering allowances to homeowners for rooftop solar panels and make it manditory for new construction to install personal solar panels. Allow the desert to be the beautiful place we all chose to live in. Please.

Sincerely,
Mary Effron

From: janice holbrook <holbrookteach@yahoo.com>
Sent: Thursday, March 28, 2024 7:01 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: solar field letter

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Please let use know if we can do anything else.

Ken and Janice Holbrook
email: holbrookteach@yahoo.com

Kenneth and Janice Holbrook

6137 Noels Knoll Rd

Twentynine Palms, Ca

92277

To whom it may concern:

Our family is totally against the creation of a 184 acre solar farm anywhere within the city limits of Twentynine Palms , California.

First, E Group is a European-based company that will send all profits out of the country. Secondly all 160,000 purposed solar panels will be purchased outside the U.S. (Canada). Thirdly electricity generated from the solar panels will not benefit the people of 29 Palms.

We do not see any real benefits for the city from this project. A benefit package as stated by E-Group is still being worked on. Our city is not for sale! As we understand the city does not allow commercial solar projects.

We are overly concerned with the environmental effect on the land and the inhabitants such as the desert tortoise. When asked about plants E-Group mentioned they would be planting vegetation to help cover the solar panels. Where will all this water come from? We are already in a drought most years.

We stayed in 29 Palms because we love the area. People come to the desert to get away from city life and to experience the beauty of the desert. We are genuinely concerned that our city will become a solar farm. We need to protect our desert.

Ken and Janice Holbrook

From: **Hollis Clark** get.hollis.clark@gmail.com
Subject: Concerns about Two Mile Solar Project
Date: March 28, 2024 at 7:41 AM
To: Keith Gardner kgardner@29palms.org

HC

CAUTION: THIS EMAIL ORIGINATED OUTSIDE THE ORGANIZATION. DO NOT CLICK LINKS OR OPEN ATTACHMENTS UNLESS YOU HAVE VERIFIED THE SENDER AND KNOW THE CONTENT IS SAFE. CAUTION

Hello,

My name is Hollis Clark and I am a resident of unincorporated Joshua Tree. I have a Bachelor Degree in Ecological Economics and I work as a naturalist guide in Joshua Tree National Park.

The resources devoted to this project would serve the community of 29 Palms and surrounding areas far more if they were used to subsidize rooftop solar and batteries retrofitted into our already built environment. The advantages of the rooftop method are obvious:

- protecting critical habitat for endangered and threatened flora and fauna as well as our beloved cryptobiotic soil crust
- curbing development prevents air and water pollution caused by dust
- onsite power+storage is far more efficient and reduces shrink across distance
- onsite power+storage makes our communities more resilient to disasters and other power disruptions by reducing mass reliance on the public grid.

The welfare of our community should come before the short term profit for these developers. You and I both know what it looks like for big money to come into this area and see dollar signs, only to be met with the harsh realities of Mother Nature.

We live here because we choose less convenience so we can experience the humbling lessons our environment has to teach. When addressing our need to reduce our carbon emissions, we must not rob Peter to pay Paul. The evidence shows how big corporations are manipulating our bureaucratic processes to benefit shareholders, no matter how “green” their pitch is. Out here, nature is brown, not green, and that’s how we like it.

If the state of California wants to lead the world toward a more sustainable way of life, we must acknowledge that the ONLY reason we are not already focusing on retrofitting our built environment is because it is more profitable for SCE and the developers to scrape the living matter (that takes thousands of years to regenerate) off a piece of land that is out of sight and out of mind for 99.9% of people. It is our duty as the .1% to push back and stand up for the creatures and plants that do not get a say.

Thank you for taking the time to read this, and I truly hope we can turn our focus to a more sensible and community-oriented approach to moving away from fossil fuels.

Sincerely,
Hollis Clark
(509)714-6252

From: George P. Mulopulos <gpmulop@aol.com>
Sent: Thursday, March 28, 2024 10:08 AM
To: Keith Gardner <kgardner@29palms.org>
Cc: Larry Bowden <lbowden@29palms.org>
Subject: Solar project

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Dear Keith,

I officially wanted to voice my opinion in favor of the 184 acre E-Group solar project north of Two Mile Road. Although I was unable to attend the meeting, I read the article about it in yesterday's Desert Trail "Locals resist plans for 200-acre solar farm" (attached) and wanted to express some of my thoughts to you.

Regarding the issue of dust from disturbed soil, this would be minimal and only during installation of the panels. It would not even be as bad as the occasional dust storm in the desert, and far less than the dust from a 184 acre housing development, for which it is zoned.

Regarding water use, the array of solar panels would definitely use much less water than a housing development of similar size. Don't you agree?

Regarding effect on wildlife, the effect would be minimal from solar panels raised over the desert and much less the effect of filling that portion of the desert with homes. Don't you agree?

The argument that Nicole Criste of Terra Nova Planning has a conflict of interest because she is working on another project in the city seems ridiculous. I do not know her, but working on more than one project does not constitute a conflict of interest. Does Vickie Bridenstine of NV5 have a conflict of interest because she is doing engineering on multiple projects in 29 Palms? Does David Van Dyke have a conflict of interest because he is contracted to work on many projects for many people in the city?

The article also does not talk about the potential benefits to the city. Has the City Council made the benefits to the city known to the public? What about the benefit of having extra power in Southern California? When SCE notifies a customer that their house will be without power for a certain day in the future this summer, as it did 4 times to my home in 29 Palms last year, they will wish that electric power was more abundant. When the State of California mandates electric vehicle use and asks the users to refrain from charging their vehicles to conserve power, the people will wish power was more abundant.

As Manager of Proactive Properties, LLC, which owns that land, I can tell you that I have had more than 15 solar companies contact me to use that particular land for solar developments of varying size. This land is across the street from a large substation, making it more cost effective for solar companies. I have been told it costs about $1 million per mile to put in power lines so the idea of putting a solar development far away from any substation is cost prohibitive.

I hope that the benefits of the solar project to the City and benefits of the general availability of power for residents in southern California are communicated by the Planning Commission and City Council at future meetings.

Respectfully,

George P Mulopulos, MD

Locals resist plans for 200-acre solar farm

By Kurt Schauppner
The Desert Trail

TWENTYNINE PALMS — If a meeting hosted by city officials Thursday at Patriotic Hall is any indication, a proposal to build a solar power field north of Two Mile Road will face determined opposition from residents.

Of the residents who rose to speak at the meeting, only one was in favor of the project.

Most raised concerns about dust, wildlife, water use and quality of life for nearby residents.

The meeting was led by Nicole Criste of Terra Nova Planning, which is creating an environmental impact report on the project.

A company called E-Group PS proposes to install 160,000 solar panels on the northern half of a 477-acre site north of Two Mile Road and west of the Twentynine Palms Public Cemetery.

Power generated by the solar field would feed into a Southern California Edison substation on Two Mile Road.

Speaking first, Indian Cove resident Cindy Bernard accused Criste of a conflict of interest because she is also working with the company behind a resort project in the Indian Cove area.

Bernard said the cumulative effects of both projects needs to be considered.

Resident Richard Gray pointed out E-Group PS officials have threatened to go to the state if they can't get local approval for their project.

Recent state law lets companies bypass local bans on industrial solar power projects, such as one enacted in Twentynine Palms, and get state approval.

"That is pretty disingenuous," Gray said.

"We are not going to let you do this," he said later. "We will stop at nothing."

"I am located downwind and east of this area where an industrial solar field should never be located," Peter Lang said.

He brought photographs he took in the area, including pictures of desert tortoises.

"The relocation of these animals is no easy task," he said.

Resident Kurt Keppeler worried about the amount of grading required.

Local environmentalist Pat Flanagan warned that soil disturbed by the project will be picked up by heavy winds.

"When the wind comes from the west, it is going to drown the city of Twentynine Palms," she said.

"We are here because we want to work with the city," developer Robert Smith said.

He added that company officials opted to come to the city for a development agreement rather than go directly to the state.

"We are here because we don't want to do that," he said.

Criste said work on the environmental impact report will continue into the fall.

From: Lauren Slivosky <lslivosky@gmail.com>
Sent: Thursday, March 28, 2024 5:47 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Harmony Solar Farm

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Hello Mr. Gardner,

I am writing to you as a resident of Joshua Tree with my opposition towards the solar farm. This solar farm will not benefit the people of 29 palms or the Morongo Basin. Instead, it will uproot precious fauna and wildlife from their homes and be a blinding eye sore for local residents. This solar farm would only profit its own corporation and Edison while residents continue to pay record high prices for their utilities.
Why not outfit all major shopping center parking lots with solar over them, or panels on the strip mall buildings? There are so many already developed places for us to place solar panels rather than destroying the precious Mojave Desert to funnel electricity over to the Edison grid. I truly hope you will consider the local residents who live in this beautiful land before stripping it bare for these blazing panels.

Thank you,
Lauren Slivosky

Lauren Slivosky
Movement Artist | Yoga | Thai Bodywork
web: www.slivyoga.com
email: lslivosky@gmail.com
IG: @laursliv
Youtube: Forever Medicines

From: Ramanda Stepp <ramandastepp@gmail.com>
Sent: Thursday, March 28, 2024 8:55 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Letter of Opposition to the Solar Farm

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Hello Mr. Gardner,
My name is Ramanda Stepp and I live in the area near the solar farm proposal. Unfortunately, I wasn't able to attend the town meeting. Please include my letter along with the others you are collecting to present. I greatly appreciate your efforts in trying to stop the city from allowing another solar farm. Your contact information was forwarded to me by Janice Holbrook. Please also add me to your contact list.
Thank you,
Ramanda

Ramanda L. Stepp
5835 Carodean Road
Twentynine Palms, California 92277

March 28, 2024

To Whom It May Concern:

I am a resident of Twentynine Palms, California, and currently live in the area known as Harmony Acres. My house is located on Carodean Road, less than a quarter mile from 2-Mile Road. I am writing this letter to make known my immense objection to the solar farm project proposed by E-Group and my sheer disappointment in the city of Twentynine Palms for even considering yet ANOTHER solar farm in our beautiful desert community.

My family first came to Twentynine Palms in 1968. Being a military family, my father requested and was granted orders to Twentynine Palms an additional three times. I went through the school system here, attending elementary school, junior high school, and high school. This year I am completing my 32nd year of teaching in the Morongo Unified School District. Clearly you can see that I am a lifelong resident of this desert community. My family continued to live in this area because of it's peaceful, scenic, and small-town charm. Lately, outside organizations have been given the reins at slowly destroying our city.

After reading the letter sent by E-Group, I can see no overall benefit of this proposal. First, the energy created from this project isn't even staying in our community. E-Group states that they "could provide all the power generated by the project directly to Twentynine Palms." However, they go on to say that this possibility is "complicated." Next, throughout this letter, no guarantees are made regarding the environmental impact on the community. They do mention planning to put up a fence that "should limit outside dust transport." I don't want to look out at a fence from my property. I'm assuming this "fence" isn't going to blend in with the surrounding landscape. Who knows what that will look like. One of the reasons the residents here chose to purchase land and build homes in this area was because of the spacious lots and views of the desert landscape. I'm wondering if our property values were taken into consideration. In addition, E-Group fails to mention exactly how much vegetation will be removed, nor where they plan to relocate the vegetation. Also, E-Group states they are "discussing" a benefit package with the City, but it is still being "negotiated." It seems to me that the big winner of this proposal will be the E-Group corporation. Sadly, the residents, who have lived, invested, and supported this community, are cast aside as collateral damage. Our picturesque desert is changing…and not for the better.

Sincerely,

Ramanda L. Stepp

From: Alex Valdivia <alex.e.valdivia.89@gmail.com>
Sent: Thursday, March 28, 2024 6:06 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Sustainable Harmony - Public Comment

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Hello Director Kieth!

I hope you are doing well and enjoying the change into Spring! My name is Alex Valdivia and I am a martial arts instructor and writer here in the High Desert. I am reaching out to you in regards to the upcoming proposal for the solar farm near Harmony Acres. Thank you firstly for your service and commitment to the community of 29 Palms and the surrounding towns and vistas. I am sharing my voice in opposition to the project. The people and natural phenomenon of the desert thrive off the sun as it is one of the main features that makes all this be. It makes sense for the solar company to want to come here. In reality this endeavour will cause major strife upon anyone and thing that is within radius of its presence. And the irony, its byproduct; sustainability, benefits those far away. This project will scrape down the peace and divinity of our desert and leave a mercurian flare on the peaceful eyes of the rooted people on this land. Eyes that love to look at the untouched beauty that weaves between our homesteads and settlements. It is what we often don't see, yet ever present, that will also take the brunt of this capitalist expansion; the animals and fauna. As a long time resident you are aware of how this ecosystem is as fragile as our need for water, peace and community. Desert dwellers have sacrificed so much to make this place our home, and now during this time, on the eve of expansion, there are those from afar who seek to profit from the disturbance of new opportunity - when in reality the opportunity is to harmonize with the pace of the basin, the here and now. Thank you for mitigating this great cause for the neighbors afflicted and sticking up for the kinsmen and beauty of 29 Palms and its bordering beyond.

Warmly,
Alex Valdivia

Subject: FW: E-GROUP PS SOLAR PROJECT public comment
Date: Tuesday, April 2, 2024 at 10:08:50 AM Pacific Daylight Time
From: Keith Gardner <kgardner@29palms.org>
To: Nicole Criste <ncriste@terranovaplanning.com>, Kimberly Cuza <kcuza@terranovaplanning.com>
CC: Smith, Robert M. <Robert.Smith@klgates.com>
Attachments: Bernard_Comment_E-Group_Solar_Project_Wildlife_Linkage.jpg

FYI

From: Cindy Bernard <cbernard@soundcommons.org>
Sent: Friday, March 29, 2024 2:55 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: E-GROUP PS SOLAR PROJECT public comment

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Hi Keith,

Consider this email and the attached jpg my public comment on the E-Group PS Solar Project. The attached jpg is based on Exhibit CO-3, Special Status Biological Resources map from the 2012 General Plan for Twentynine Palms. I have added representations of parcels for three potential developments in their approximate locations and scale.

The red shapes represent the two current active developments, "SF" being the solar farm and "OF" being the Ofland resort. The red outline marked "ER" is the earth hut resort for which the City received a pre-application from Wilshire Group LLC / Joubin Sedgh in 2022. Wilshire Group LLC has since purchased the parcel.

The City has done a good job of outlining the potential impacts of the E-Group PS Solar Project: Aesthetics, Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Tribal Cultural Resources, and Utilities/Service Systems.

I am concerned about all of these impacts and question whether E-Group PS is able to sufficiently mitigate them. Their answers at the recent public forums did not alleviate my concerns.

To these impacts I would add CEQA XIV (a) "Population and Housing" - the need to increase density on lower density parcels in order to satisfy AB330 resulting in "substantial

unplanned population growth."

From what I understand the area marked SF is inclusive of the AB 330 offset for the decrease in residential zoning that would happen should the solar farm proceed. To date, neither of the other two developments have mentioned the required AB 330 offset, yet between them there are 369 additional acres that would be removed from residential zoning for commercial use and would need a residential zoning offset.

Accordingly, I have a larger concern and question -- is it possible to consider the impacts of the E-Group PS Solar Project in tandem with the two other potential developments located on the west side of Twentynine Palms per CEQA XXI (b) Mandatory Findings of Significance?

Shouldn't the E-Group PS Solar Project be considered in connection "with the effects of past projects, the effects of other current projects, and the effects of probable future projects"? Isn't Ofland a "current project" and the Wilshire Group LLC "Earth hut" resort "a probable future project" given they bought the land? Also I would add that the scraping of land that's already occured on two large parcels in Indian Cove is an "effect of past projects."

Additionally:

1. The Ofland and Wilshire Group LLC "Earth hut" developments will have a list of impacts similar to the E-Group PS Solar Project.

2. All three developments are located in the same prong of a crucial north-south wildlife linkage extending from the Marine Base to the Joshua Tree National Park.

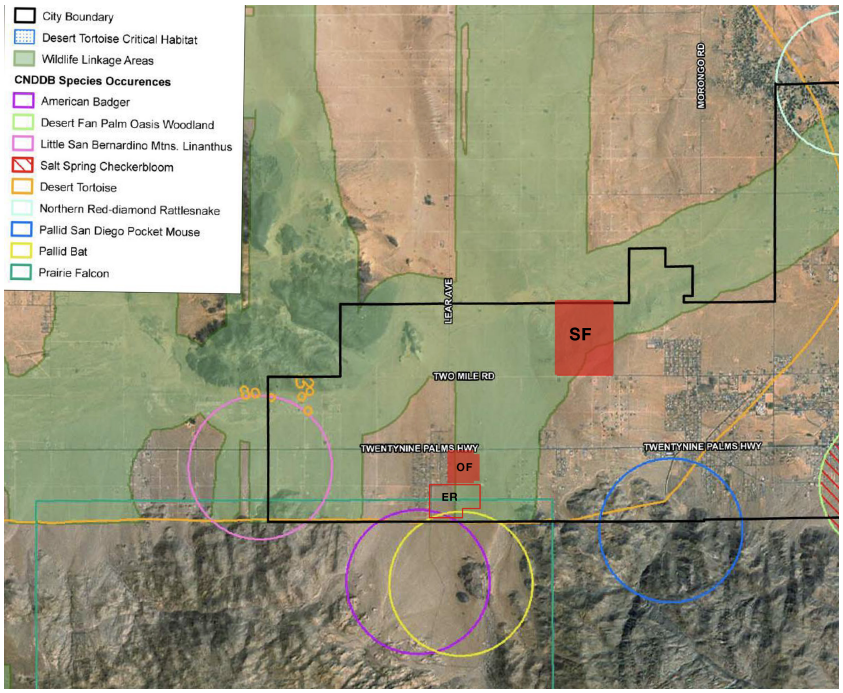
3. All three developments are commercial projects in residential zoning which will require AB330 offsets and all are in the same area of town -- in fact all are in City Council District 1. How does this remapping of the west side of 29 Palms align with the goals of the 2012 General Plan?

4. Given the cumulative nature of these potential impacts is it possible for Nicole Criste / Terra Nova to represent the City on the E-Group PS Solar Project while also representing the private developer for Ofland? At the Ofland public meeting held on February 28, Ms. Criste shared that Ofland would be seeking a mitigated negative declaration for their resort.

Thanks for the opportunity to submit public comment on the E-Group PS Solar Project. I hope that we can all benefit from taking a serious look at what this project, along with others wishing to convert residential zoning to commercial use, means for the future of our wildlife, our environment, our quality of life and our City.

Sincerely,

Cindy Bernard
Residential address (not mailing):
69711 29 Palms Hwy., Twentynine Palms, CA 92277



Cindy Bernard (mailing address)
P.O. Box 624
Joshua Tree, CA 92252

T @cbernardstudio
I @cindy.bernard
http://www.cindybernard.com

From: Pat Flanagan <patflanagan29@gmail.com>
Sent: Friday, March 29, 2024 3:22 PM
To: Keith Gardner <kgardner@29palms.org>
Cc: Steve Bardwell <steve@infinityranch.net>; Arch McCulloch <arch_mc@yahoo.com>; Brian Hammer <bhammer@mojavewater.org>; Janet Johnston <janetjohnstn@earthlink.net>; Kerrie Aley <6102ka@gmail.com>; Allen Songer <allansonger@icloud.com>; Cindy Bernard <cbernard@soundcommons.org>
Subject: E-Group PS Solar project

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Good Afternoon Keith,

Please accept my comments on behalf of myself and the Morongo Basin Conservation Association.

I look forward to the draft EIR.

Best,
Pat

The California Desert's Role in 30X30: Carbon Sequestration and Biodiversity

February 6, 2024



Dr. Michael Allen, Ph.D. Distinguished Professor Emeritus. Department of Microbiology and Plant Pathology, University of California, Riverside

Dr. Cameron Barrows, Ph.D. Conservation Ecologist, Emeritus. Center for Conservation Biology, University of California, Riverside

Colin Barrows, Co-founder, Cactus to Cloud Institute

Susy Boyd, MNR. Master of Natural Resources, Forests and Climate Change. Oregon State University

Pat Flanagan, B.A. Biology. California State University, Long Beach

Robin Kobaly, M.S. Biology and Plant Ecology. University of California, Riverside

Arch McCulloch, M.S. Computer Science. Azusa Pacific University. B.S Geology / Computer Science. California State University, Dominguez Hills

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Author Biography

Dr. Michael Allen. Dr. Michael Allen has a Bachelor of Science in Biology from Southwestern College in Kansas, a Master of Science in Botany from the University of Wyoming, and a Ph.D. in Botany from the University of Wyoming, and is currently a Distinguished Professor Emeritus in Microbiology and Plant Pathology at the University of California, Riverside. He has worked on carbon flux and mycorrhizae since his dissertation, served as a program officer at the National Science Foundation where he managed Long-Term Projects, Ecosystems, and Conservation and Restoration Biology. During his tenure, he led discussions for the initiation of the National Ecological Observatory Network (NEON), served as an original member of various NEON boards, led the Biodiversity workshop, led the California bioregion discussions, and designed the soil sensor network that was adopted by NEON to measure soil carbon flux.

Dr. Cameron Barrows. Dr. Cameron Barrows worked for The Nature Conservancy (TNC) with his wife Kate, managing the last remaining old growth redwood forest in Mendocino County, CA, and conducting research on Spotted Owls (1980-1986). Dr. Barrows continued working for TNC and other NGO conservation organizations to implement the first-in-the-nation Habitat Conservation Plan in the Coachella Valley and expanding that plan to encompass the full breadth of biodiversity within that valley (1986-2005). Research focused on the Coachella Valley fringe-toed lizard and flat-tailed horned lizard. He worked with the Research Faculty at the University of California Riverside's (UCR) Center for Conservation Biology (2005-2022). Research focused on the response and resilience of desert species to modern climate change. Emeritus Research Faculty at UCR (2022-Retired). Still doing research and still married to Kate (44 years and counting). Their son Colin is carrying the desert conservation torch into the coming decades.

Colin Barrows. Colin is a Coachella Valley naturalist and desert advocate who works to promote conservation of natural open spaces and native species. He works with local agencies to advance habitat conservation, recreational trails planning, and education about desert ecosystems. He also serves on the board of the Mt. San Jacinto Natural History Association. Colin currently serves as co-founder of the Cactus to Cloud Institute.

Susy Boyd. Susy Boyd completed her MNR [Master of Natural Resources] degree at Oregon State University with an emphasis in Forests and Climate Change. Her research project developed climate change predictions and impacts on Seasonally Dry Tropical Forests in Mexico's Yucatan region. Prior to her studies with OSU, she received a Master of Arts degree in Rhetoric and Communication at UC Davis where she also served as lecturer. She currently works with Mojave Desert Land Trust as Public Policy Coordinator.

Pat Flanagan. Pat Flanagan is a naturalist - educator with a BA degree in biology from CSU Long Beach. She was the director of education at the Tijuana River National Estuarine Research Reserve for 10 years. She developed the first bilingual coastal wetland curriculum for bi-national distribution and training. This curriculum was later adapted to the Colorado Desert for the Desert Protective Council. She was a founding member of the Mojave Desert Land Trust where she held various positions. She is on the board of the Morongo Basin Conservation Association (20 years) for whom she has studied and commented extensively on Utility Scale Solar projects in the Mojave Desert. She is an advisor to the Mojave Desert Resource Conservation District and the naturalist at the historic 29 Palms Inn Oasis of Mara.

Robin Kobaly. Robin Kobaly holds both BS and MS degrees in Biology and Plant Ecology from the University of California, Riverside. She served as a botanist for the U.S. Bureau of Land Management for 21 years, working on regional conservation plans, habitat management plans, management plans for Areas of Critical Environmental Concern (ACEC), and environmental impact statements. Kobaly served on the Independent Science Panel providing science-based input to the planning process for the Desert Renewable Energy Conservation Plan (DRECP). She currently serves as Executive Director of The SummerTree Institute, an environmental education non-profit.

Arch McCulloch. Arch McCulloch has Bachelor of Science degrees in Computer Science and in Geology from California State University at Dominguez Hills, and a Master of Science degree in Computer Science from Azusa Pacific University. He spent 35 years as a software and information assurance engineer in the defense industry. He is currently on the boards of Morongo Basin Conservation Association (MBCA) and the Mojave Desert Chapter of California Native Plant Society (CNPS).

Joan Taylor. Joan Taylor has been conserving the California desert for over five decades, including eight years as an appointed stakeholder to DRECP, where she co-authored the joint environmental NGO comments on the CEC energy-acreage calculator. Joan has received numerous awards and acknowledgements for her life-long leadership

in desert conservation. Currently, she serves on the governing board of the Coachella Valley Mountains Conservancy, The Wildlands Conservancy, and Friends of the Desert Mountains. Joan also chairs the Sierra Club's California Conservation Committee and its California/Nevada Desert Committee.

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The California Desert Conservation Area

Executive Summary

Our state's southeast desert region is unlike any other locale of the state. California's desert ecosystem comprises a staggering 25% of state land (approx.26 million acres) and is locally accessible to approximately half of our state's population. The unique beauty of the desert ecosystem has driven visitation to the region, with Joshua Tree National Park recognized as the 8th most visited national park in the country in 2022.

In spite of its rapidly rising popularity, the California desert as an ecosystem remains poorly understood, underfunded, and misperceived. One of the most persistent mischaracterizations is that the California desert is a barren wasteland with low biodiversity and limited capacity for carbon storage. Scientific data refutes these inaccuracies, and this report will demonstrate that the California desert has extremely high biodiversity and is a significant carbon sink with tremendous opportunity to sequester carbon and help our state meet its atmospheric carbon reduction goals.

There are 2 key takeaway messages from this report:

1. **The desert's carbon storage process differs significantly from more widely understood sectors such as forests, grasslands, chaparral, and wetlands.**

2. **Because of the distinct carbon storage process found in the desert ecosystem, there is one recommended strategy to maximize the desert sector's contribution to carbon emission reduction: intact desert lands need to be left undisturbed.**

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I. Introduction. California's goal of carbon neutrality seeks to balance the net flux of greenhouse gas emissions (GHG) from all sources and sinks.

> California's non-forest habitats play an unappreciated but critical role [in carbon sequestration] …. As with forests, non-forest habitats can store carbon by keeping it from being released and sequester it by removing it from the atmosphere. Habitats in arid and semi-arid regions — including shrublands, grasslands, and deserts — have been found to store significant amounts of carbon while being resilient to drought and increased atmospheric carbon (Yap et al., 2023).

As reported by Yap et al., globally, scientists estimate that deserts store 999 – 1,899 petagrams [Pg] of carbon. In the United States, southwest deserts sequester 50 teragrams [Tg] of carbon annually (equal to 0.05 Pg). And in California's northern Mojave Desert, field experiments demonstrated that CO_2 exchange plays a larger role in global carbon cycling than what scientists and policy makers have long assumed. The desert ecosystem, unlike other sectors, is largely unmanaged with the exception of some restoration projects. Additionally, the desert's recovery from alterations of any kind takes place on a time scale at a much slower rate relative to other ecosystem types, up to thousands of years.

The desert's function as a significant global carbon sink is an emerging and exciting scientific territory that merits a central place in any endeavor to meet climate change goals.

Center for Biological Diversity, Yap, T., Prabhala, A., & Anderson, I. (2023). *Hidden in Plain Sight: California's Native Habitats are Valuable Carbon Sinks* (W. Leung, Ed.).

II. Maximizing Carbon Sequestration and Biodiversity Protections

Maximizing carbon sequestration and concurrent protection of high biodiversity in the California desert ecosystem is achieved by conserving 100% of <u>undisturbed</u> public lands.

Arch McCulloch, MS
Board Member, Morongo Basin Conservation Association / Mojave Desert Chapter of CNPS

It is axiomatic that disturbances in the desert take a long time to heal. Scars in terrain altered by General Patton's World War II training exercises remain visible today, and areas grazed by cattle still, over 60 years later, support vegetation assemblages that indicate a history of grazing and associated fires (Sawyer et al. 2009). Deliberate disturbances, such as the desert intaglios near Blythe, can last for many centuries.

Many desert perennials are long-lived: Joshua trees (*Yucca brevifolia*) can live over 100 years and Mojave yuccas (*Yucca schidigera*) can live over 1,000 years; desert ironwood (*Olneya tesota*) may live a thousand or more (Rymer 2023). Creosote bush (*Larrea tridentata*) clonal rings over 10,000 years old are still living in parts of the Mojave Desert (Porter 2012). Blackbrush (*Coleogyne ramosissima*) may take over 60 years to re-establish on sites where it has been removed (Anderson 2001). Obviously, restoration of disturbed sites is complicated by these time scales.

In desert soils, restoration is even more complicated due to very deep and expansive root systems and to the complex soil biota that has co-evolved with plants on particular sites over millennia. After removal of perennial plants, the re-establishment of this deep soil biota, even more than the extremely slow growth rates of desert perennials, means there is no practical way to restore lands where this relationship has been disrupted.

Photovoltaic solar (PV) is rightly seen as a core energy resource to reduce our carbon footprint. The issue is where to place it to best attain this goal. There is great risk of unintended consequences when Southern California deserts are narrowly assumed to be the primary locale for utility scale solar, as we discuss in the following sections. Photovoltaic efficiency is highest on cool, sunny days, which maximizes the electric potential of the solar cell. Since cloud cover and high ambient temperatures both reduce PV efficiency, cooler areas with higher cloud covers will have PV efficiency comparable to hot areas with lower cloud cover. Locating solar panels as close as practicable to load will reduce resistance losses. The success of PV generation in Germany shows that acceptable efficiency is achievable with these strategies.

Given the ability of undisturbed desert land to bind and hold carbon on a scale of millennia, and the difficulty of restoring disturbed desert lands to anything approaching this capability, we believe that any solar project proposed for the desert should be sited on the vast areas that have already been disturbed by urban, agricultural, and industrial installations (and by the ruins, both physical and biological, of former installations).

In sum, any calculation of equivalent carbon savings by a desert solar installation must, if it is honest, subtract carbon no longer sequestered by the destroyed vegetation, as well as carbon being released to the atmosphere by soil now exposed to weathering. It must also account for replacing an ecosystem service (that, if undisturbed, would continue to operate independently and indefinitely), with an industrial service requiring near-constant maintenance and complete equipment replacement every few decades.

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Characterizing Disturbed Lands

Susy Boyd, MNR. Master of Natural Resources, Forests and Climate Change, Oregon State University
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Disturbed lands are those areas where infrastructure development has been or may be encouraged. The state of California as a whole has much to offer in terms of disturbed lands suitable for utility infrastructure as we transition to clean energy and meet our state's impressive climate change mitigation goals.

Landscape-scale disturbance falls across a continuum. A pristine desert ecosystem characterizes one end of the spectrum, and worst-case scenario characterized by loss of ecosystem function represents the other end of the spectrum (C. Barrows Ph.D., personal communication, September 14, 2023). A functioning desert ecosystem provides ecosystem services beyond carbon sequestration including habitat for desert organisms. So long as perennial woody vegetation remains intact, the landscape can be considered a functioning ecosystem, even with presence of non-native grasses and mustard that have

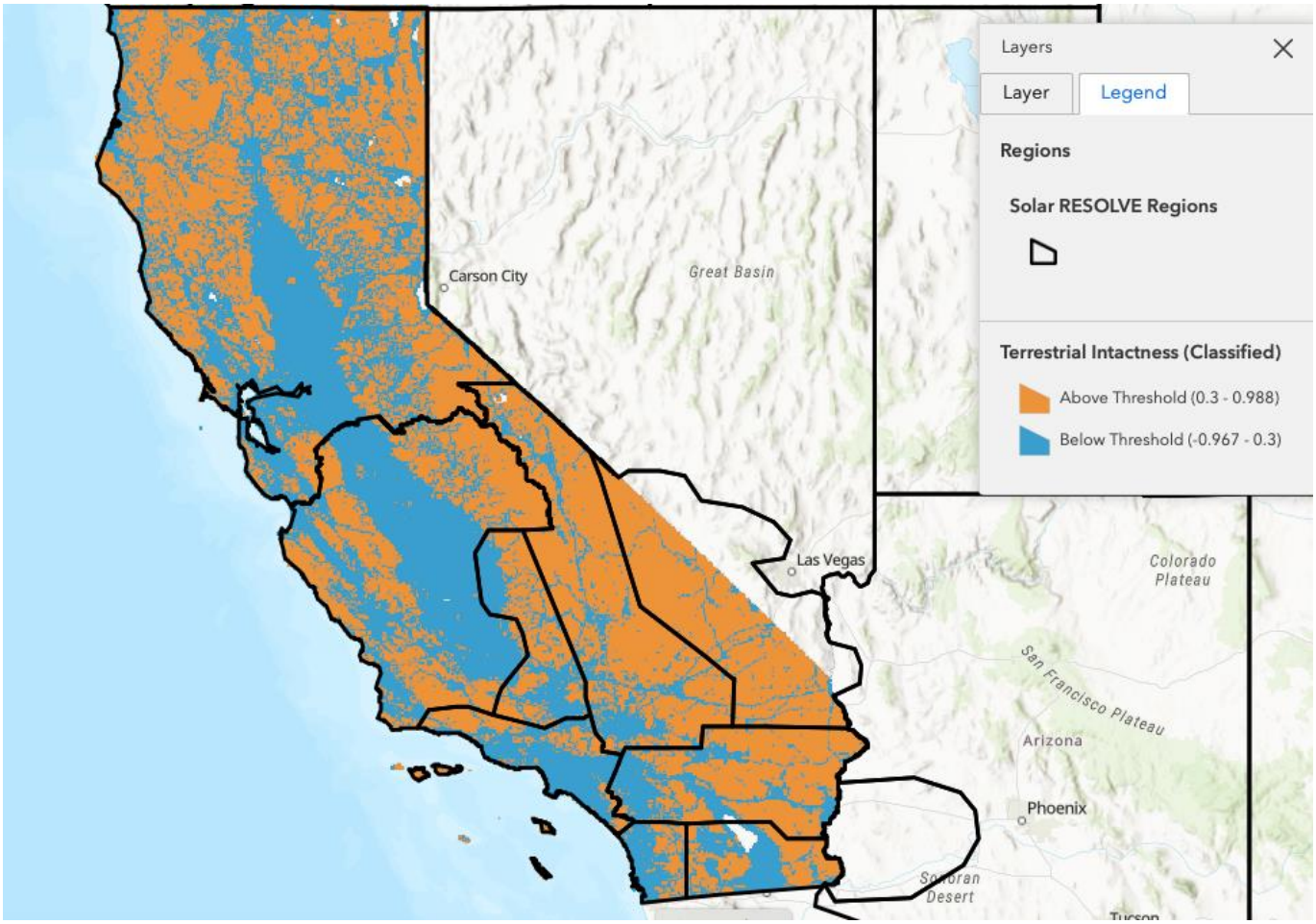
ephemeral impacts based on water availability. Other examples of undisturbed lands subject to minor impacts include areas with light or well-managed grazing, lands affected by wildfire (with root zone left undisturbed), and lands impacted by flooding with no expected continuing disturbance.

Examples of landscapes that have lost most of their functionality would be abandoned building sites, fallow agricultural lands, and large-scale mining operations; degraded OHV playgrounds; parking lots; and rights-of-way for transmission lines and canals. Residential and commercial developments are also regions where ecosystem function has been reduced to nonfunctional status.

In 2023, the California Energy Commission [CEC] released a staff report entitled, “Land-Use Screens for Electric System Planning.” Land use screens are high level land use evaluation tools that identify favorable sitings for renewable energy after considering technical and economic criteria; legal restrictions; and planning considerations for biodiversity, crop production, climate resilience, and landscape intactness. The 2023 report provides descriptors for landscape intactness:

> Terrestrial landscape intactness: ***A measure of landscape condition based on the extent to which human impacts such as agriculture, urban development, natural resource extraction, and invasive species have disrupted the landscape across California.*** The Conservation Biology Institute (CBI) has created a multicriteria evaluation model using more than 30 data layers, or variables…. The CEC staff partitions this dataset at the mean to create two categories: areas that are already disturbed and have degraded ecosystem function and areas where development would impair the landscape and cause new disturbance. In this analysis, areas of low landscape intactness are most suited for exploration of renewable resource potential, whereas areas of high intactness are better suited for conservation. Therefore, the higher category of landscape intactness values is used to remove technical resource potential from the state.

Lands with degraded ecosystem function are shown in blue (below the mean) in the following map and areas with high intactness value (above the mean) are displayed in orange. Areas with high landscape intactness (orange) indicate areas with low priority for infrastructure development in order to preserve ecosystem function, biodiversity, and carbon sequestration capacity. Intact landscape characterizes much of the California desert region, though large tracts of disturbed land across the state remain highly viable options for renewable energy development. More thorough analysis of disturbed desert lands is needed for planning purposes. Future industrial scale solar projects should be sited on disturbed lands that already exhibit low intactness.



Source: Hossainzadeh, S. et al. 2023.

Landscape Intactness as calculated by CBI is partitioned into high and low categories based on the mean.
Orange = High intactness [Undisturbed]
Blue = Low intactness [Disturbed]

Reference

Hossainzadeh, Saffia, Erica Brand, Travis David, and Gabriel Blossom. 2023. Land-Use Screens for Electric System Planning: Using Geographic Information Systems to Model Opportunities and Constraints for Renewable Resource Technical Potential in California. California Energy Commission. Publication Number: CEC-700-2022-006-F.

Why desert restoration is not an effective means to achieve atmospheric carbon reduction goals

Robin Kobaly, M.S. Biology and Plant Ecology, University of California, Riverside
Executive Director, The Summertree Institute

The rate and success of restoration efforts or recovery of disturbed ecosystems is largely dependent upon water availability. When an impacted ecosystem has ample water available for seed germination, root establishment, and growth of new foliage, recovery can be fairly rapid, ushering back the community of insects, reptiles, birds, mammals, and microbes that depend upon plants in the ecosystem. However, if a disturbed ecosystem has limited rainfall and low soil nutrient content, recovery either naturally or through restoration efforts takes much longer and may not always succeed. Recovery from disturbance by temperate ecosystems is much faster than in arid ecosystems, with both infrequent, unpredictable precipitation and low soil nutrients contributing to the slower recovery of arid ecosystems such as those in the California deserts.

Recovery and restoration in forest ecosystems requires about 40 years, but recovery and restoration in desert ecosystems can take centuries longer. Research suggests that removal of desert vegetation and disturbance of the topsoil requires about 30 years before the pre-existing plant community begins to grow back, over two centuries before even partial recovery of species composition occurs, 50 – 300 years for recovery of plants to pre-disturbance cover and biomass, and up to 3,000 years before the disturbed area returns to the ecosystem function it had before disturbance. Disturbance is defined here as a physical force (e.g., road building, plowing for agriculture, construction of industrial-scale solar fields, etc.) that removes most or all the plant biomass.

Research indicates that the older the plant community, the longer the recovery time. Desert ecosystems are known for the longevity of their perennial plant community, with many shrubs living hundreds (blackbrush, Mormon tea, galleta grass, pinyon, etc.) to thousands of years (creosote, Mojave yucca, California juniper, nolina, desert ironwood, etc.). Data show that protecting deserts from disturbance is critical for sustaining old communities, valuable for their generational contributions to ecosystem stability. The desert's ancient plants sustain their community through centuries of drought episodes, excessive heat waves, frosts that kill younger plants, and attacks by diseases and pests that compromise younger plants struggling to become established.

Some scientists have hypothesized that if disturbed, the oldest communities may not actually recover, even with restoration efforts, and they could be replaced by an alternative community. The reasoning is that climate and other conditions (e.g., invasion by exotic species, climate extremes, anthropogenic nitrogen deposition) have changed so much since the communities developed hundreds to thousands of years ago, restoration attempts may not be successful in recreating the original ecosystem, and a different community may become established instead of the original community.

Active revegetation in southwestern deserts has generally been confined to small areas because of its expense, the unpredictable weather that makes restoration effectiveness uncertain, and logistical challenges associated with implementing treatments across large desert areas.

Since disturbances can leave scars in the desert visible for multiple human generations and because restoration is so difficult, costly, and not guaranteed, great care should be exercised before disturbing the desert, not simply for ecosystem health, but also to preserve visual aesthetics, air quality, human health, ecotourism viability, biodiversity, and carbon sequestration capacity. For these reasons, conservation of intact desert lands should be prioritized over restoration of land not already scheduled for disturbance by infrastructure projects.

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III. The Critical Relationship Between Undisturbed California Desert Lands and Carbon Sequestration

Michael F. Allen, Ph.D.
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A microphyll woodland that was later denuded for a utility-scale solar energy facility. While individual trees and shrubs are small aboveground, belowground their roots expand horizontally and vertically, filling the interspaces and reaching to depths of tens of meters. These deep-rooted plants are also very long-lived, sequestering carbon for hundreds to thousands of years. One clonal creosote shrub was measured as 22 by 8 meters across, and was over 11 thousand years old.

- Carbon fixation and allocation in microphyll woodlands and creosote shrubland is relatively insensitive to local precipitation due to the access that these vegetation types have to two alternate sources of water: moisture from large rain events even miles away that saturate the soil,

and access to groundwater by deep roots. These factors allow plants in microphyll woodlands and creosote bajadas to photosynthesize and sequester carbon throughout the seasons even without local precipitation. Although highly variable annually, measurements of net ecosystem exchange [NEE] in mesquite stands through a growing season can exceed 200 kilograms of carbon per hectare per year (kgC/ha/y) and net ecosystem exchange of creosote bajada scrub can exceed 1,000 kgC/ha/y. Our back-of-the-envelope conservative estimates suggest that these two vegetation types could sequester an average of 1.5 million tons of C per year. [By comparison, NEE during a wet year in Baja California was 520 kgC/ha/y with a sky island coniferous forest above southern California desert at 300 kgC/ha/y, a 100-year-old chaparral during a wet year of 520 kgC/ha/y, and drought year of 180 kgC/ha/y, the La Selva tropical rainforest of 1,000 kgC/ha/y (dry year)/3,000 kgC/ha/y (average)/5,000 kgC/ha/y (wet year), and a boreal forest 780 kgC/ha/y]. In deserts, the organic carbon of the ecosystem turns over on an average of 38 years, with soil and sediments turning over on a 200-year average. This contrasts with a temperate forest of 25 and 55 years, respectively; a cropland turnover of 22 and 40 years, respectively; and a perennial grassland turnover of 36 and 100 years, respectively. Desert organic carbon once fixed stays in the system longer than in other ecosystems, releasing back to the atmosphere slowly.

However, unlike the large storage of organic C in most ecosystems, much of the desert total carbon is stored as calcites, generated by respiration.

- Calcites, layered into caliche, form from autotrophic respiration from deep roots and symbiotic microbes, and from heterotrophic respiration of the transferred organic matter. If buried and undisturbed, this carbon can remain sequestered for millennia. We estimate that more than 262 million tons of C could be stored in California deserts as calcites.
- Importantly, buried calcites are dissolved upon exposure to air and water. Upon exposure, the CO_2 in calcium carbonates can be released from disturbed soils up to 2.4 gC/m^2/day, or 24 kgC/ha/day following a precipitation event.
- We suggest a new C sequestration modeling approach to validate and close the desert carbon budgets using an ecohydrology approach, incorporating deeper water use and using normalized difference vegetative index {NDVI} rather than precipitation as a driver of CO_2 fixation, and linking the NEE to deep C sequestration.

Conclusion

- Large-scale disturbance of deserts, particularly within critical ecosystems such as creosote bajadas and microphyll woodlands, has the potential to reduce not only California's biodiversity, but also a source of long-term carbon sequestration, releasing calcite carbon stored for millennia.

IV. Overview of Carbon Sequestration Process in Desert Ecosystems

Robin Kobaly, M.S. Biology and Plant Ecology, University of California, Riverside
Executive Director, The Summertree Institute

What drives carbon capture and storage in deserts?

The combination of a hot, dry climate, and dynamic plant adaptations to that extreme climate has created a unique pathway for the capture and storage of carbon (carbon sequestration) in deserts. Sparse rainfall has resulted in desert soils that are abundant in minerals such as calcium, but low in nutrients like nitrogen necessary for plant growth. That sparse rainfall, combined with hot, dry surface soils, has enticed many desert plants to grow exceptionally long roots to reach deep soils that still hold moisture from rain

events from years past and possibly from miles away, or even deep enough to reach down to groundwater.

Root partners like fungi and bacteria living on or within those deep-rooted desert plants absorb and share resources with their plant host, helping their plant partners overcome the minimal presence of water and nutrients. These pressures, adaptations, and partnerships all work together to create an unexpected mechanism for extremely long-term carbon storage – and carbon capture that can continue even when we least expect it: when rainfall is just a memory across the desert.

How does the desert capture and store carbon?

While desert plants do capture and store carbon aboveground in foliage and woody tissue, they store much of their captured carbon deep underground in a massive network of connected roots and fungal root-partners, unlike forests which store most of their carbon aboveground or near the soil surface. Some of this carbon is stored in the tiny but numerous filaments of root-partnering fungi, called mycorrhizal fungi, that live in partnership with plant roots. The filaments, or mycelia, of one large group of these mycorrhizal fungi are coated with a "sealant" called glomalin made from carbon that was captured aboveground by the plant host. Because there can be so many miles of fungal hyphae (covered with glomalin) in each cubic foot of desert soil, glomalin is attributed with storing one-third of the world's soil organic carbon.

Much of the carbon these plants capture aboveground from the air and convert into sugar is eventually turned into inorganic carbon underground. When the long roots breathe out (respire) carbon dioxide deep into dark moist soil, this carbon dioxide combines with the abundant calcium in our arid soils to create mineralized deposits called calcite (calcium carbonate), or "caliche" when it forms into layers. These deposits start as tiny crystals but eventually grow to large crystals, then chunks, and into layers of caliche that can start at the soil surface or form at various depths underground. These calcite/caliche deposits can store captured carbon in this inorganic form for hundreds, to thousands, to even hundreds of thousands of years…if not disturbed.

Where does carbon sequestration occur in deserts?

Historically, much of the desert's "soil organic carbon" has been missed by soil scientists, because many soil studies conclude at "plow-line depth," or between 6 and 12 inches. These studies aren't of much relevance in the desert because most of the carbon that desert plants capture is stored extremely deep in the soil. Roots of most (non-succulent) desert plants grow incredibly deep, up to ten times longer than the plant is tall in their critical quest to find soil moisture, and the subterranean biomass of this network of deep roots is filled with organic carbon. A veritable inverted "forest" of root mass holds carbon deep underground in desert soils. These deep roots and their connected fungal root partners continuously breathe out carbon dioxide from just below the soil surface down to as much as 150 feet (over 40 meters), or down to groundwater. That exhaled carbon, in contact with calcium and moisture, is eventually converted underground into calcium carbonate (calcite) crystals which can form into layers of caliche, capable of storing that carbon for millennia.

When does carbon sequestration happen in deserts?

Carbon is captured wherever desert plants grow, but the level and timing of that capture varies with the types and distribution of those plants across the landscape. Desert grasslands and areas with *shallow*-rooted shrubs and cacti capture carbon in response to rain events; in these habitats, carbon accumulation after precipitation can be as high as in wetter ecosystems. Habitats with *deep*-rooted plants, such as

microphyll woodlands (dry washes with small-leaved trees like palo verde, mesquite, and ironwood), as well as creosote bajada scrub (broad alluvial slopes with creosote bushes) can continue to photosynthesize and capture carbon long after rain events. Because of their long roots that reach to deep, percolated water from previous rain events (possibly occurring miles away), or even reaching down to groundwater, these stands of desert plants can extend their carbon fixation long into drought cycles. These factors allow plants in microphyll woodlands and creosote bajadas to photosynthesize and sequester carbon throughout the seasons even without local precipitation.

How much carbon is captured and stored in the desert?

Scientists are currently working on ways to measure deeply buried carbon across vast landscapes like the California Desert that are highly diverse in topography, soils, climate, and vegetation. Carbon-storing calcite/caliche deposits are distributed in patches in some places and in vast layers in others. Also, these deposits are distributed at varying soil levels depending upon rainfall and the depth of desert plant roots that can deposit carbon all the way down to groundwater. Arriving at a total value for stored underground carbon in a diverse desert is much more challenging than for other more homogeneous landscape types. However, we do have data that measures how much carbon is accumulated by plants in some specific desert habitats, and can compare capture rates to other ecosystems around the planet.

The primary gauge of an ecosystem's carbon sink potential is the net exchange of carbon between the ecosystem and the atmosphere, i.e., the carbon balance of the land, or how much carbon comes in versus how much carbon goes out. This measurement is called "net ecosystem exchange," or NEE. By comparing the carbon balance of diverse ecosystems, we can get an idea of the relative strength of each ecosystem's carbon sink capacity. Dr. Michael Allen has summarized NEE measured within various ecosystems worldwide. He compared them to those measured across two vegetation types thought to sequester significant amounts of carbon in the California desert (microphyll woodlands, which can contain mesquite, and creosote bajada scrub). As shown in the table below, the carbon sink capacity of creosote bajada scrub rivals that of a tropical rainforest or boreal forest. Even microphyll woodlands are in the range of coniferous forests in southern California. **The combined two desert vegetation types, microphyll woodland and creosote bajada scrub (just two of many vegetation types in the California desert), could sequester an average of 1.5 million tons of carbon per year.**

Net Ecosystem Exchange Rate	kilograms Carbon per hectare per year
Sky island coniferous forest in southern California desert	300
100-year-old chaparral during a wet year	520
100-year-old chaparral during a drought year	180
La Selva tropical rainforest (wet year)	5000
La Selva tropical rainforest (dry year)	1000
Boreal forest	780
Mesquite stands (microphyll woodland) in California desert	200+
Creosote bajada scrub in California desert	1000+

What happens to stored carbon if we disturb desert soils?

Despite its long-term storage capacity, caliche releases its sequestered carbon when vegetation is removed and soils are disturbed and exposed to erosion. As caliche degrades in disturbed soils, its calcium and carbon molecules are uncoupled, releasing the carbon to reenter the atmosphere as carbon dioxide.

Why care?

We risk losing massive accumulations of carbon stored underground as calcite/caliche if the desert soil surface is disturbed. This carbon capture and storage system is functioning now and will continue to capture and store carbon if soils are not disturbed. Most of the caliche in our desert soils was actually formed during the Pleistocene when the climate supported more dense and productive vegetation**. In fact, Dr. Michael Allen at the UCR Center for Conservation Biology commented on the desert's capacity to store large amounts of carbon dioxide as caliche, noting that, "The amount of carbon in caliche, when accounted globally, may be equal to the entire amount of carbon as carbon dioxide in the atmosphere."**

Removal of carbon from our atmosphere is now being considered an important component of fighting climate change. The synthetic conversion of excess atmospheric carbon dioxide to calcite and storing it underground is gaining much attention and funding (although with major technical difficulties). Our deserts are performing this conversion every day, automatically, without any input from humans, and it will continue that unaided sequestration and long-term storage if simply left undisturbed.

V. Quantification of Carbon Sequestration in the Desert

Carbon and California Deserts: June 2023.

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Arid lands worldwide have sequestered carbon (C) for millennia. Human–caused perturbations of deserts alter this balance and risk releasing significant amounts of CO_2 to the atmosphere, exacerbating global warming. **Although the net primary production in California Desert Ecosystems is generally low, there remains a net positive carbon sequestration in wildland ecosystems, particularly across desert bajadas and microphyll woodlands.**

There *remains a view* that, because of low precipitation, high temperatures, and sparse vegetation, hot deserts of southern California are of limited value to carbon sequestration. However, our deserts contain a very large carbon sink. Laid down over thousands of years, desert C is more dynamic and sensitive to disturbance than is often acknowledged. As Martin and colleagues (Martin et al. 2021) noted:

> "Although equilibrium is often assumed between soil carbon dioxide and groundwater, disequilibrium may result from heterogeneous distributions of recharge, flow paths, and respiration often seen in the carbonate critical zone. Understanding the controls of this disequilibrium, which drives carbon dioxide dissolution or evasion and alters pH, weathering reactions, and carbonate mineral dissolution or precipitation, is critical in linking the carbonate critical zone to the global climate system."

Below, I outline the basis for our concerns with the loss in natural wildland deserts because of its importance in the global atmospheric carbon budget as well as the associated loss of biodiversity (Hernandez et al. 2015).

CO_2 fixation. Due to the low leaf area, one assumption made by large-scale ecosystem models is that deserts fix carbon at relatively low rates. But when water is available, leaves of desert plants photosynthesize at the same rates as in other ecosystems, and leaves can grow rapidly with soil moisture. Broadly, and especially during drought, rates of flux, net ecosystem exchange (NEE), across scales measured by techniques such as eddy flux, are often low but highly variable. At Deep Canyon during a series of dry years, our NEE was slightly positive. Alternatively, from the desert free air CO_2 enrichment (FACE) research project, under ambient CO_2 conditions, NEE was estimated up to 1.27 metric tons of carbon per hectare per year (MTC/ha/y) (Jasoni et al. 2005). The standing crop mass was 11 kg of carbon per hectare (kgC/ha), 80% of which was soil organic carbon (SOC) and sensitive to atmospheric CO_2 levels, largely deposited as soil C (Evans et al. 2014). For the Sonoran desert ecosystem, NEE was estimated as ranging from 120 kg·of carbon per hectare during a dry season to 360 kg·of carbon per hectare during a wet season (Huxman et al. 2004). [By comparison, NEE for a wet year in a desert in Baja California was up to 520 kgC/ha/y, a sky island above southern California desert at 200 to 300 kgC/ha/y, a 100 year old Chaparral of 520 kgC/ha/y, and drought year of 180 kgC/ha/y, the La Selva tropical rainforest of 1,000 kgC/ha/y (dry year)/3,000 kgC/ha/y (average)/5,000 kgC/ha/y (wet year), and a boreal forest 780 kgC/ha/y].

From these desert NEE measurements, where is the additional carbon in deserts? Likely deep in the profile (see discussion in C sequestration). Desert grasslands and areas with shallow-rooted shrubs and cacti are coupled to precipitation and carbon accumulation depending on local precipitation. However, large pulses in precipitation provide groundwater that extends the length of active photosynthesis of deeply-rooted shrubs (greater than 50m) such as creosote and mesquite (*Prosopis)* (Huxman et al. 2004) and utilization of deep groundwater from storms generated far upstream can extend the carbon fixation of stands into drought cycles in deserts (Scott et al. 2006) and in the uplands such as the montane sky islands (Kitajima et al. 2013). Plants with shallow roots in deeper pools and in groundwater can access many sources of water in which to undertake photosynthesis and carbon accumulation (Querejeta et al. 2007, Querejeta et al. 2009). Reynolds and colleagues (Reynolds et al. 2004) challenged the simple "pulse-reserve" complex showing that in deserts, sequences of pulses are more important than individual events, and Weiss and colleagues (Weiss et al. 2004) found that Normalized Difference Vegetation Index (NDVI), using satellite imagery that visualizes greenness, showed that water from distant sources (groundwater) can extend photosynthetic activity (Bisigato et al. 2013, Rohde et al. 2021).

What is clear is that simple precipitation models are inadequate for assessing carbon sequestration in arid lands, riparian corridors, or any areas that have underground sources of water. Understanding and modeling Carbon requires a complex approach that integrates ecohydrology and plant morphologies (Gutiérrez-Jurado et al. 2006).

Where does the fixed CO_2 go? Groundwater originates at higher elevations in complex terrain, traveling in subsurface flows to lower bajadas, providing moisture to creosote and microphyll woodlands. At these lower elevations, plants have very deep rooting systems from several meters down at least to 53m [174'] in the case of honey mesquite, *Prosopis juliflora*, (Canadell et al. 1996) and down into the caliche layer in the case of creosote, *Larrea tridentata* (Barbour 1969), sometimes growing through cracks and extending below the caliche layers and affecting water fluxes and soil development (Gutiérrez-Jurado et al. 2006). Because they can utilize the deep groundwater, shrub photosynthesis extends beyond the local precipitation season (Ávila-Lovera et al. 2017). Isotopic signature data from my group at Deep Canyon showed that the deep-rooted shrubs acquired between 69% and 87% of their water for photosynthesis from groundwater (M. Allen unpublished data). Others (Ogle et al. 2004) have shown that the water through the stem could well be used to model water uptake profiles, and thereby provide estimates of stored soil water use, and thereby assess the SOC buried deep in the profile.

This deeper C is the reason for some of the slow turnover of SOC and for the formation of calcites (discussed below).

C sequestration. In terrestrial ecosystems, there are three forms of sequestered C to be considered. The first is easier to estimate and model, and that is aboveground herbaceous and woody tissue, with some estimates providing belowground tissue C as well. At the global scale, current aboveground biomass is 349 Pg, belowground 92 Pg, totaling 441 Pg C (Walker et al. 2022). The second is the soil organic carbon (SOC), globally equaling 3,037 Pg C, or more than 8 times the estimated aboveground carbon, and nearly 7 times the total standing crop biomass.

If we use a NEE figure of 200 kgC/h/y (see CO_2 fixation section) for creosote and for microphyll woodlands, we can begin to estimate at least the C accumulation for desert ecosystems. There are 2.47 acres per ha. Using the CA 4th Climate Change Assessment for the Inland Desert Area, there are 489,423 acres of microphyll woodland and 17,466,886 of creosote. Using this estimate, that would amount to an average of 1.5 million tons of carbon accumulated by these two vegetation types annually. Using the EPA Level III Ecoregions map, that would amount to 1.88 million tons of carbon. These estimates are in the range for coniferous forests or oak woodlands in southern California.

There are large gaps, such as between the NEE of Jasoni and Huxman. If 80% of the carbon (C) is allocated belowground to a meter in depth (Evans et al. 2014), and a large fraction is transported deep, then the overall carbon accumulation will be underestimated. In isotopic studies, soil calcite values show evidence of C recycling in soil (Schlesinger 1985, Allen et al. 2013) above the caliche layers, suggesting extensive C recycling. C is transferred downward via roots deep into the profile (sometimes more than 50m). Respiration of roots and symbiotic microbes (autotrophic respiration) and decomposers (heterotrophic respiration) produces CO_2. Add water (ground water or surface precipitation) and calcium (Ca)-derived upslope from basalts, limestone, marble or dolomite -- and some of that CO_2 is bound into calcites, the most stable of which is $CaCO_3$. Because the process is a dynamic equilibrium, add water again, and exposed calcite can be re-solubilized. Some of the CO_2 is volatilized back to the atmosphere and the Ca moves downward with the water. That Ca rebinds with newly respired CO_2 in the deeper layer, again forming calcite. The deeper the process occurs, the higher the CO_2 concentration. The process continually repeats itself to the maximum depth that water travels (forming a caliche layer), or to groundwater. Surface measurements, such as from eddy covariance techniques, are highly variable as the environmental conditions are fickle even within the footprint of the sensors, and for sensitivity to assumptions regarding fetch and topography. Most comprehensive soil carbon measurements (from soil cores) to date are constrained to the top meter of the soil.

Further, to understand sequestration, we must also incorporate carbon turnover. For example, despite enormous production, tropical rainforests have fast rates of decomposition resulting in a rapid turnover, thereby returning the fixed carbon back to the atmosphere. In wet tropics, the average turnover for vegetation is 15 years, and soil organic carbon (SOC) 27 years. Temperate forests vegetation turns over on average every 25 years, and the SOC in 55 years (Reichle 2020). Desert vegetation turns over every 38 years, but the SOC turns over on a 200-year span. Moreover, carbonates, when buried, can remain for millennia, but upon exposure, will volatilize releasing CO_2 to the atmosphere.

The soil carbon component is complex, but there are indicators that deserts may sequester SOC in many complex forms. As an initial example, in the Mojave Desert under Creosote (*Larrea tridentata)* canopy, the arbuscular mycorrhizal fungal standing crop was 423 kgC/ha (and 635 kgC/ha under elevated CO_2). It is very challenging to determine the hyphal lifespan, critical to estimating C sequestration, as literature values range from 5 days (Staddon et al. 2003) to 145 days (Treseder et al. 2010). Currently other efforts to estimate turnover are being undertaken by Allen from image data already collected. Much of the variation is probably due to responsiveness of fungal hyphae to individual precipitation events at daily to seasonal scales (Hernandez and Allen 2013). An example is glomalin, a glycoprotein complex produced largely by arbuscular mycorrhizal fungi, that has a long retention span (Rillig et al. 1999, Allen 2022). Glomalin is known to accumulate due to a slow turnover, (measured using immunoreactive soil protein

(IRSP), and can be as much as 40 µg/g soil (Clark et al. 2009). Using a 2m rooting depth, this means that there may be 2 metric tons of glomalin protein per ha across the extensive creosote shrubland soils, representing a significant pool of SOC.

Calcites/Caliche Carbon. Carbonates may be relatively unimportant to the global C cycle over a time scale of millions of years, as precipitation and dissolution is continuous. However, at time scales of decades to centuries, the inorganic carbon (C_i), is often in disequilibrium and can dramatically impact the carbon cycle (Martin 2017). At a global scale, as much as 940 Pg C_i is sequestered as soil calcium carbonate (or calcite) with as much as 1404 Pg C as bicarbonate in groundwater, more than all the soil organic C (1530 Pg C), and well more than the 594 Pg C of standing plant biomass (Monger et al. 2015). Chuckwalla, Gunsight and Cherioni soils contain extensive layering of calcites, and even Carsitas soils have carbonate coatings on the surface of rocks. In the Chuckwalla Valley, for example, estimates ranged from 36 metric tons of carbon/hectare to 82 metric tons of carbon/hectare. Using the smaller figure, and assuming that calcites underlie much of the creosote and microphyll woodlands (14.6 tons of carbon/acre), then a conservative estimate is that there could be as much as 262 million tons of carbon stored deep in desert soils.

Moreover, produced at approximately 4 kgC/ha/y, the buried calcite-C becomes relatively stable. Schlesinger (1985) estimated that the $CaCO_3$ in the Chuckwalla Valley was formed during the Pleistocene, between 15,000 and 20,000 years ago, and an 85,000-year residence time appears to be relatively accurate. However, upon disturbance, loss rate appears to be significant over annual to decadal time scales, as much as 10 kgC/ha/wet day (Swanson 2017).

The conversion of CO_2 to calcite is considered important enough that considerable effort is being undertaken to synthetically convert atmospheric CO_2 to calcite (Pogge von Strandmann et al. 2019), the process that desert plants undertake every day.

*The **Mechanism** in deserts*. Both roots and microorganisms respire CO_2: then CO_2 and H_2O (water) combine to form HCO_3^- and an H^+ ion, acidifying the soil. Upon encountering Ca^{2+} dissolved in soil water, HCO_3^- binds to the Ca to form $CaCO_3$, a large fraction of which precipitates to form calcite (limestone, $CaCO_3$), or upon layering, caliche.

Accessing groundwater acquired by deep roots of specialized desert plants. Roots can go down tens of meters to acquire water (Canadell et al. 1996, Jackson et al. 1999). At the interface of the water table, microbial activity may dramatically increase. Just above the water table, arbuscular mycorrhizae search for phosphorus and other nutrients, in part to sustain dinitrogen fixation (with high respiration rates) occurring in the groundwater (anaerobic) by associated bacteria that provides the nitrogen for these ecosystems (Virginia et al. 1986). Mycorrhizae increase respiration of CO_2 (Knight et al. 1989) as well as sequestering organic C (Rillig et al. 1999).

Groundwater in western deserts is notorious for being hard, that is, having high concentrations of $CaCO_3$. As it is pumped up for use, $CaCO_3$ dissociates, releasing CO_2 (Wood and Hyndman 2017). They estimated that groundwater depletion could account for a measurable fraction of annual CO_2 emission. As caliche is exposed to the atmosphere, caliche degrades releasing CO_2 (Hirmas and Allen 2007). One assumption is that because Ca^{2+} remains in the soil, re-association with HCO_3^- will occur (Mills et al. 2020). This certainly will be the case in a closed system (such as a laboratory beaker). But in an open ecosystem, equilibrium remains an open question and is in need of further examination (Leij et al. 1999, Martin 2017, Gallagher and Breecker 2020, Martin et al. 2021). On the surface, $CaCO_3$ equilibrates with CO_2 at ~400 ppm, the current atmospheric CO_2 level (Hirmas et al. 2010), but soil CO_2 where most exchange occurs can range up to 3,000 ppm (Allen et al. 2013), likely accounting for deposition of caliche beds (Schlesinger 1985). Rhizosphere CO_2 levels (in the soil rooting zone) can exceed 3,000 ppm in undisturbed soil, but drop in devegetated lands, only increasing CO_2 loss from $CaCO_3$ dissolution (Allen et al. 2013). Deep in groundwater, CO_2 bound as $CaCO_3$ can exceed 190 mg/L (DeSimone et al. 2009), degassing as it is pumped out (Wood and Hyndman 2017). Surface isotopic values of caliche show that

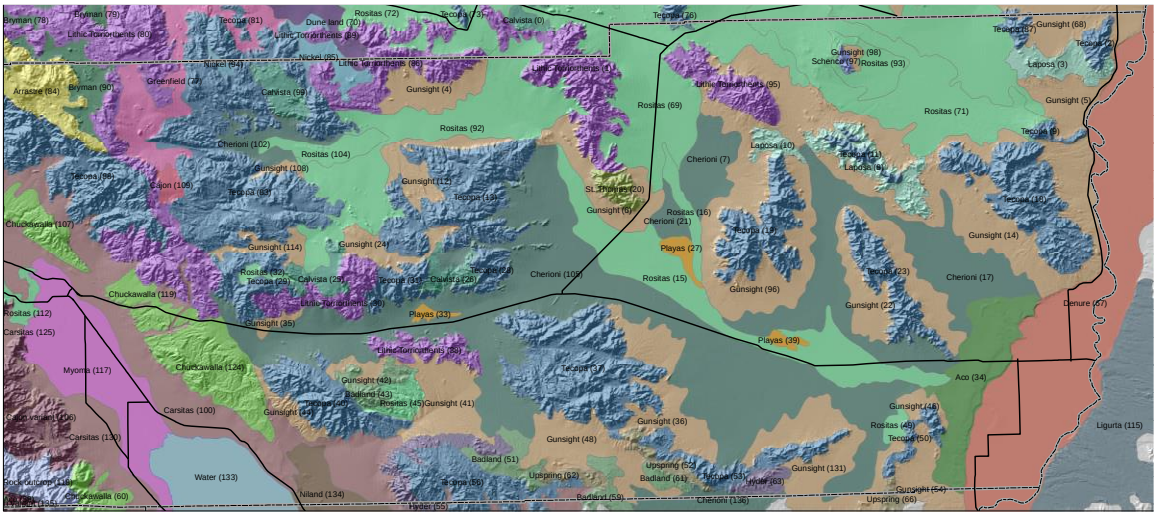
there is a fractionation in the caliche C, indicating that exchange (losses or gains in caliche C) is occurring (Allen et al. 2013, Mills et al. 2020). The conversion of land to agriculture and tree production is resulting in a shallowing of rooting depths nationwide along with a loss of deep root functioning (Billings et al. 2018).

Summary: Concerns.

Adding the dynamics of calcites to the slow SOC turnover demonstrates why the overall C cycling becomes extremely challenging to quantify, especially across long time scales and an area as diverse and large as the California desert. Loss of NEE from California deserts would amount to a significant loss of carbon in addition to loss in California's biodiversity.

But our largest concern is the risk of losing massive accumulations of carbon, stored underground as calcite-C. This C capture and storage system is functioning now and will continue to capture and store C for long time periods if soils are not disturbed. In the Chuckwalla Valley of the California deserts, C as $CaCO_3$ was 8 kgC/m^2, within the top 1.35 m of soil (Schlesinger 1985) in one profile and 3.5 kgC/m^2 in a second. $CaCO_3$ can be found across the valley. Assuming an average of 6 kgC/m^2, there could be 60 metric tons of C per ha of microphyll woodland/creosote bush in the surface soils. A large fraction of the Chuckwalla Valley creosote bush and microphyll woodland has already been stripped of vegetation for a single solar development.

It is always challenging to extrapolate beyond the actual locations of measurements. However, existing datasets support this concern. Schlesinger (1985) raised the issue that disturbance of desert caliche C was of concern to C budgets. When we examine soils maps, the bajadas and microphyll woodlands have high concentrations of soil $CaCO_3$, across Chuckwalla, Gunsight and Cherioni soils. These soils are alluvial soils, often with a calcic horizon ranging from 25 cm to more than a meter deep, and often with creosote scrub vegetation fingering into microphyll woodlands. These soils extend from almost every mountain range in the California deserts. So, this is our best estimate.



US Soil Map for East Riverside County

compname	id#	caco3_l	caco3_r	caco3_h
Rositas	15	-	-	-
Cherioni	17	0	3	5
Gunsight	36	4	6	8
Gunsight	96	4	6	8
Cherioni	105	0	3	5

Quantity of Carbonate (CO3) in the soil expressed as CaCO3.
Weight percentage of the less than 2 mm size fraction

Other maps, such as the SSURGO Soil data for Coachella Valley show high calcite concentrations in the bajadas and in the desert washes north of the Salton Sea, but south of the Salton Sea, where agriculture predominates, that calcite is largely gone, except for some upper edges.

Our final concern is that with increasing disturbance of desert soils by utility-scale solar energy [USSE] there will be a loss of the high biodiversity of California's deserts. We are especially concerned with a direct loss in microphyll woodlands and desert bajadas, and in a potential for the decrease in the linkages between these vegetation types and the uplands where Ca and water inputs occur. Both biodiversity and regulation of carbon cycling will be impacted, to date with unpredictable consequences. The more we learn and apply understanding of the soil carbonate dynamics (Martin et al. 2021) to managing for biodiversity and carbon cycling, the better we will be able to manage desert lands to reduce greenhouse gas production and sustain our biodiversity (Allen and Mishler 2022).

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VI. Modeling Carbon Sequestration in Our Deserts

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Many modeling efforts purporting to describe C sequestration in deserts are problematic. They underestimate C accumulation, as they use precipitation drivers at the location of production. However, desert plants use water over longer terms from single large events, and uplift groundwater precipitated in mountains well away from the locations of primary production. We agree with others who have critiqued the California Air Resources Board [CARB] modeling as dramatically underestimating the C sequestration potential by ignoring large parts of the C cycle (CarbonCycleInstitute 2022). Currently, destruction of large wildland deserts for agriculture, mining, or for Utility-Scale Solar Energy (USSE) development is on-going or proposed for California deserts.

We know that traditional precipitation-based modeling for C sequestration is inadequate. However, is there a more useful approach? We argue that there is a more promising direction based on existing modeling approaches.

First, Normalized Difference Vegetation Index (NDVI) should be used to identify the land areas with photosynthetic activity and the duration of that activity (Rohde et al. 2021), not local precipitation. From the greenness activity, it should be feasible to estimate C fixation, replacing the precipitation driver for wet periods in models such as DAYCENT (Parton et al. 1998).

Second, an ECOHYDROLOGY model (Gutiérrez-Jurado et al. 2006) allows for estimating water transport and coupling soil properties (including calcite horizons) building on HYDRUS (Šimůnek et al. 2005). HYDRUS can also be used with the equations described by Kitajima and colleagues (Kitajima et al. 2013) to quantify the additional timeframes for C gain using intermediate depth- and ground-water sources.

Third, the SLIC model (Hirmas et al. 2010) evaluates the transitions between $Ca + CO_2 + H_2O <> CaCO_3$.

Fourth, once the water sources and time frames are identified, NEE measurements coupled with soil respiration measurements could provide spot-checks on modeled values.

This modeling approach can provide a comprehensive overview to help close the carbon cycle in the deserts. It is important that the confirmation measurements are based on a long-term dataset, and that, given CO_2 and global temperature changes, two or more longer-term C cycling instrument facilities be deployed. The model as developed by the National Ecological Observatory Network (NEON), could serve as a model, and could be installed at field stations such as the NRS stations at the Granite Mountains and Boyd Deep Canyon, or the CSU Zzyzx station.

References: Please see previous section V.

VII. Mapping and Identifying Prioritized Areas of our Desert to Achieve Carbon Reduction Goals

Microphyll woodlands/Creosote

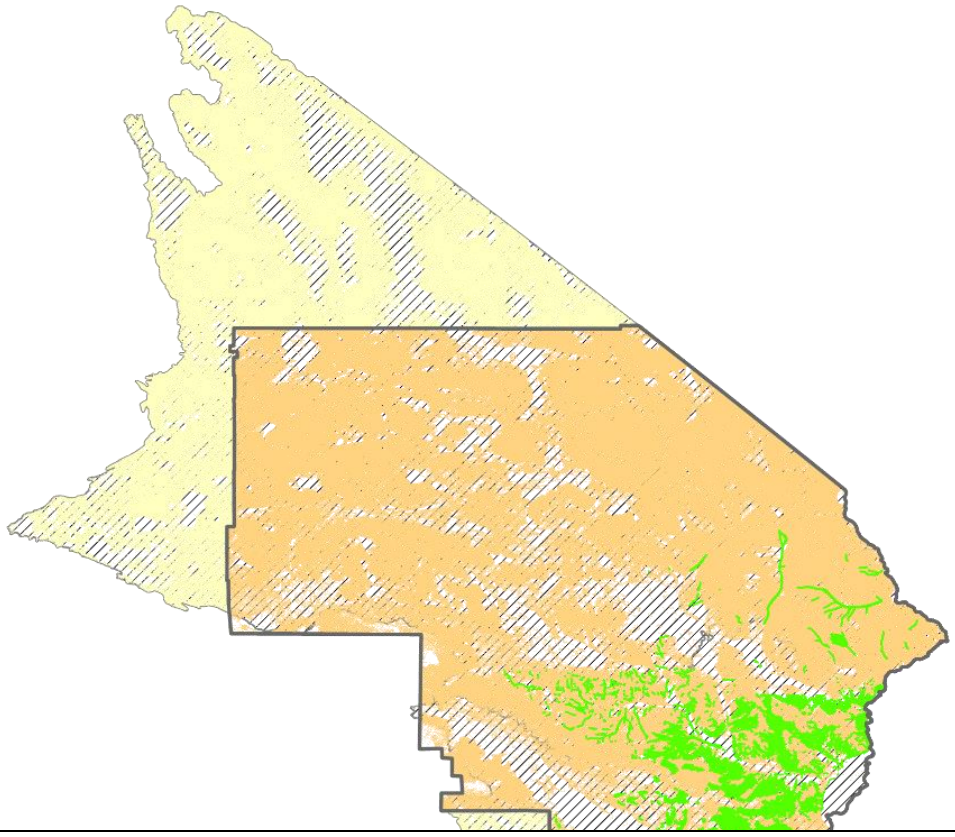
Colin Barrows. Co-founder, Cactus to Cloud Institute

In sections IV, V and VI above, Kobaly and Allen indicated the importance of two specific desert vegetation types in the desert region's impressive capacity to store carbon. Kobaly notes the combined

carbon sequestration capacity of **microphyll woodland** and **creosote bajada scrub** could sequester an average of 1.5 million tons of carbon per year. Allen reports that these two vegetation types create a net positive carbon sequestration value within California's desert ecosystem.

Section VI discussion around the relationship between groundwater and underground caliche formation (carbon sequestration) plays out across these two vegetation types. With the groundwater originating at higher elevations, it traverses in subsurface flows to lower elevations such as those where the creosote bajadas and microphyll woodlands are found. The vegetation types here have rooting systems that can run over 53m [174'] deep. Root systems of creosote can grow into the caliche layer and beyond to reach groundwater sources.

The dynamics of these two vegetation types are of particular interest in demonstrating high capacity for carbon sequestration, though they are not the only vegetation types nor the only means by which carbon may be sequestered within the desert ecosystem. But microphyll woodlands and creosote are of high interest in discussion of carbon sequestration in the desert, and this section identifies and quantifies which desert regions warrant high prioritization for conservation.



EPAIII CA Deserts boundary (DRECP) [Exterior Boundary]

CA Climate Assessment inland desert boundary (30x30) [Interior Boundary]

Shrub/Scrub land cover for both areas in orange (30x30) and yellow (DRECP)

Microphyll woodland in green.

Small areas of lighter green outside the 30x30 area.

SUMMARY

Boundary Area	Desert Vegetation Type	Acres
CA 4th Climate Change Assessment Inland Desert Area [30X30] Boundary	Shrub Scrub Land Cover	**13,300,107**
EPA Level III Ecoregions, Mojave and Colorado CA Desert Area	Shrub Scrub Land Cover	**18,715,754**

Recommended acreage of conserved desert land for vegetation cover types microphyll woodlands and creosote bajadas.

It should be noted that these identified lands represent those areas recognized to be highest conservation priority for carbon sequestration function. These acreages represent only a partial opportunity to maximize carbon sequestration and protect biodiversity.

VIII. Additional benefits

Biodiversity in California's deserts

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Pat Flanagan, B.A. Biology. California State University, Long Beach
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California is by far the most biologically diverse of the United States' contiguous 48 states, with deserts comprising roughly one third of California's land surface. And yet California's deserts, as well as deserts worldwide, tend to be overlooked in discussions of biodiversity. The dictionary definition of "desert" reflects the prevailing bias: "a large area of land that has very little water and very few plants growing on it". Other descriptors include "wasteland," "barren," and "lifeless." *Desert* is often used as a euphemism for a place where little or no life, food, or culture exists. Other than being arid, none of these perceptions is accurate.

One can test the hypothesis that California deserts are biologically depauperate. Covering one third of California, if species were randomly distributed, then we would expect about 33% of California's plant and animal species to live in deserts. Values significantly less than 33% would support a belief that our deserts are, compared to elsewhere in California, lacking living things. On the other hand, if values are greater than 33%, then the assumption of our deserts being a barren wasteland would be categorically false.

While exact numbers will vary with shifting taxonomic classifications,

> **California is the home of almost 2300 native annual herbaceous plants, over 3600 native perennial herbaceous (not woody) plants, over 1300 species of native shrubs, and just under 240 native tree species** (using Calflora's Consortium of Herbaria database).

Combining California's three main deserts—the Great Basin, the Mojave, and the Colorado— along with the "sky island" mountains that are within or border those deserts, it was found:

> **55% of those native California annual herbaceous plants, 53% of perennial herbaceous plants, 60% species of shrubs, and 53% of those native tree species live in the California deserts**.

Of the three deserts,

> **The Mojave has the highest plant species richness, with 49% of those native annual herbaceous plants, 44% of perennial herbaceous plants, 52% of shrub species, and 45% of those native California tree species.**

Since this species richness is well above 33% in each of those plant categories, we can reject the hypothesis that California deserts have low biodiversity.

> **In the categories of annual herbaceous plants and shrubs, California deserts have more species than any other ecological region in California.**

Our desert "wastelands" are not only richer from a vegetation standpoint, but they also appear to be incubators of speciation, with many species occurring nowhere else on earth. A recently published study, Pillay et al. (2022, *Frontiers in Ecology and the Environment*, vol. 20, issue 1) looked at patterns of vertebrate animal species richness across our planet. As expected,

> **They found that the tropics ranked number one. However, deserts were the next most species-rich biome when it came to mammals, birds, and reptiles, higher than temperate forests, shrublands, and grasslands.**

In California, reptile species richness is especially high in our deserts.

> **California has 40 species of native lizards that call our state home. Ninety percent of those can be found in our deserts, again**, well above the expected 33% of lizards that were randomly distributed across California. **At least six of those lizards are found nowhere else.**

Some areas are especially species rich. Along with colleagues from the U.S. and Mexico, we looked at lizard species richness across North America and found nowhere else that compared to deserts in the number of species that occur together.

> **The top spot was the Coachella Valley at the edge of the Colorado and Mojave Deserts which has 33 lizard species within a 50 km [31.07 miles] radius circle. Of the 34 species of snakes found in California, 76% are found within desert habitats.**

We do not have similar data sets for insects. However:

> **Native bee pollinators in the Joshua Tree National Park area are estimated to include more than 600 species representing 40 genera in 6 families.**

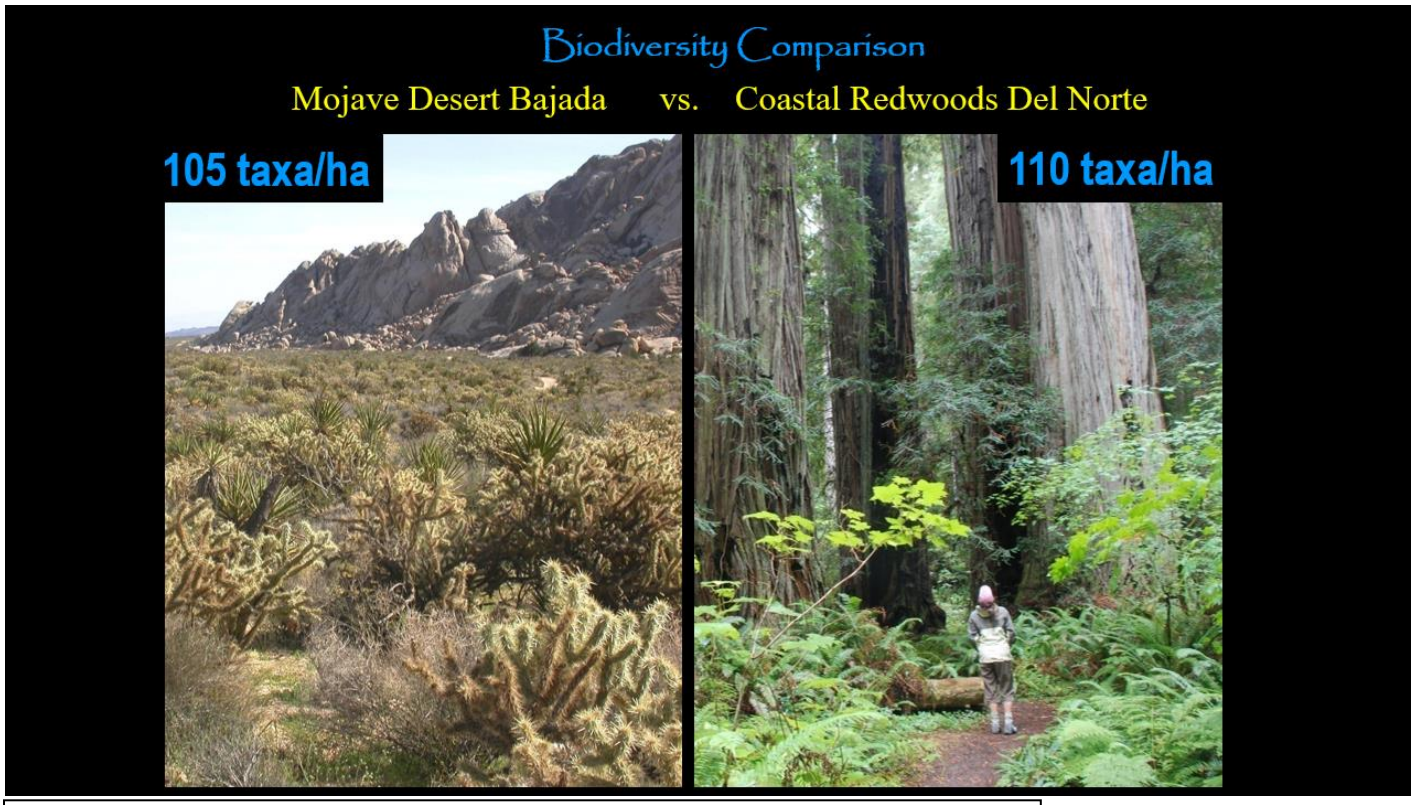
And some insect families, such as darkling beetles (Tenebrionidae), specialize in living in arid habitats. Darkling beetles are the clean-up crews in deserts. Technically detritivores, they eat dead matter, replacing the job fungi and bacteria do in moist environments. Several years ago,

> **[Dr. C. Barrows] conducted a survey of darkling beetles living on the remaining sand dunes of the Coachella Valley. Across those dune fragments [Dr. C. Barrows] found 34 different darkling beetle species. Try to put that into perspective: Imagine finding a lake with 34 resident species of ducks, or a forest with 34 species of warblers, or a mountain range with 34 species of deer.**

Beyond biodiversity, people also put value on superlatives such as the antiquity of individual plants or animals. In the Pacific Northwest, redwood trees can reach the advanced age of 3200 years. In the central Sierra Nevada range, giant sequoias can reach 2700 years of age, and in the White Mountains,

bristlecone pines can be up to 4800 years old. That's impressive. But even more impressive is the oldest creosote bush, the most widely distributed desert shrub:

> **The King Clone creosote is 11,700 years old, an extreme superlative. There are also desert tortoises who can approach nearly 100 years of age.**



Courtesy of James M. Andre. Sweeney Granite Mountains Desert Research Center. gmdrc@ucr.edu

Economic benefits

Susy Boyd, MNR, Master of Natural Resources, Oregon State University
Public Policy Coordinator, Mojave Desert Land Trust

Land that is set aside for conservation holds potentially high economic value as a driver of tourism and recreation. The good news is that recreational use of public lands allows the land to remain largely undisturbed *and* continue to sequester carbon, thus fulfilling a dual mission while generating local business and tax revenue.

A 2014 report [ECONorthwest] noted economic contributions of Quiet Recreation Visits within 50 miles of recreation sites on BLM-managed lands within California. Total Direct Spending was $243,938,853. In inflation-adjusted dollars for 2023, that amount today would be $314,392,148.

Visit California's Economic Impact of Travel report for 2021 indicated Local Tax Revenue of $293,000 for the state's Desert Region, supporting community benefits such as safety, fire, recreation, and library services.

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Biocrusts in the desert

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Executive Director, The Summertree Institute

Overview:

~ Microscopic organisms living at and near the surface of arid soils produce glue-like substances that hold undisturbed desert soils together and prevent soil erosion

~ These living soils, called biocrusts, create and store valuable fertilizing nutrients for the surrounding plant community

~ Biocrusts, when kept intact, hold otherwise dangerous PM10 and PM2.5 particles and spores, such as Valley Fever, in the soil and out of the air, protecting people from breathing in these health-impacting pollutants

A thin surface crust forms across arid soils on or within the top few centimeters of the soil surface. Surprisingly, these crusts are not made up simply of encrusted, excess soil minerals as often thought, but are created by microscopic and somewhat larger macroscopic organisms that live together in an unseen but profound world.

The microbes that make up this living "biocrust" live only near the top few centimeters of the soil because they need sunlight to make their own food. As some of these organisms travel through the soil, their network of mucilaginous, hollow tunnels between soil grains records a history of their movements and leaves a legacy of soil cohesion.

These and other tiny microbes living between desert soil grains create and store scarce, valuable, fertilizing nutrients like phosphorus and nitrogen at and below the surface, and they share these building blocks for life with all the plants in the surrounding community. If not disturbed by vehicle wheels or bulldozer blades, this soil cement and the community that produced it can persist for many thousands of years—or more.

Biological soil crusts keep soils intact and prevent dust storms…unless soils are disturbed. The dried, glue-like threads of microbes in biocrusts form a resistant seal across the soil surface, keeping dust, particulate matter, and harmful fungal spores like valley fever from being blown up into the air wherever the soil has not been disturbed.

These living soil crusts take hundreds of years to develop into effective soil "sealants." When they are allowed to remain intact, they will hold back wind and water erosion, supply nutrients to neighboring plants, improve water infiltration, prevent particulate matter from entering the air, and help keep our air clean and healthy. When living soil crusts are disturbed, choking dust storms occur. Dust storms blow harmful particulate matter into the air – and we breathe it in. The smaller particulate matter (smaller than 10 microns, or PM 10 particles) when inhaled into our lungs cause health impacts ranging from coughing and wheezing to asthma attacks and bronchitis, as well as high blood pressure, heart attacks, strokes, and premature death in people with heart and lung disease.

Keeping desert biocrusts intact protects the health of people living near the soil disturbance as well as people living many hundreds of miles from the point of disturbance.

Health benefits

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Maximizing the desert region's carbon sequestration potential by conserving undisturbed non-military land provides the additional benefit of bolstering public health. Dust, particularly [Particulate Matter] PM_{10}, is an important outcome of disturbance in desert wildlands (Pointing and Belnap, 2014; Frie et al., 2019). Desert dust erosion resulting from disturbance of desert soils is a source of significant health issues (Lwin et al., 2023) ranging from respiratory particles to local sources of heavy metals including Aluminum, Arsenic, Selenium, Cadmium, Lead, Uranium and Thorium (Frie et al., 2019). Numerous studies have noted evidence of associations between desert and sandstorm dust, and morbidity/mortality rates. Particle size is believed to be one of the key factors implicated in health risk. Large-sized particles can cause damage to external organs causing skin, eye, and ear irritation. But small size particles are capable of entering the respiratory tract and causing disorders within that system. The smaller size particles may penetrate the respiratory tract and damage cardiovascular, cerebral, cerebrovascular, blood and immune systems.

The high incidence of childhood asthma surrounding the Salton Sea (at a rate over 20%) is among the highest in California. In on-going studies, mice models found that the dust collected from these disturbed desert areas triggered a significant neutrophil inflammatory response that is distinct from the known immune allergic response, causing "asthma-like symptoms" (Biddle et al., 2023). This tells us that there are unknown new diseases emerging from the increasing disturbances in California's desert.

Desert dust may also cause infectious disease by carrying pathogens. An example is Valley Fever, caused by spores of fungi of species of *Coccidiodes*, which is present in desert soils and triggered upon inhaling dust when surface soils are disturbed (https://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.html). Valley fever is endemic in California desert soils and increasing dust with disturbance and global warming is of concern (Cat et al., 2019; Gorris et al., 2019). In new studies from California deserts, local dust emissions are increasing and releasing novel microbial pathogens (Freund et al., 2022) that we are only now beginning to identify.

At the global scale, it is estimated that 1.7% of lung-cancer and cardio-pulmonary disease deaths can be attributed to chronic exposure to desert dust. In latitudes with extensive deserts such as Africa, the middle East and Asia, the percentage jumps to 15 – 50%. Short-term exposure to dust was documented to be the source of respiratory illness among 70% of Afghan and gulf war veterans deployed between 2003-2004.

Clearly, scientific research demonstrates a concerning link between desert dust and severe public health risk. Disturbance to desert soil is a contributor to desert dust, presenting an additional benefit for leaving desert lands undisturbed.

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IX. Transition to Clean Energy: Meeting our Clean Energy Goals and Minimizing Disturbance to our Desert Ecosystem

Introduction

There is a growing understanding that a tension exists between the need to conserve desert land, which itself functions as a significant nature-based solution to store carbon emissions – and expansive renewable energy projects that disturb desert lands and in doing so, release carbon back into the atmosphere.

This is a solvable problem that requires coordination between renewable energy developers, conservationists, policy makers, and the handful of experts who have carefully analyzed and evaluated desert lands and crafted detailed maps that consider solar industry needs, cost, and conservation all at once. This is the key work that needs to be done if desert lands are to continue their critical function as grand carbon sinks. Experts agree that the means to successfully navigate the nexus of industrial solar and conservation of carbon-storing natural desert lands lies with thoughtful, advanced planning, and integration of a suite of renewable energy options. If desert lands are perceived as a sacrificial ecosystem in the name of renewable energy, we run the risk of undermining the long-term carbon storage function they have performed for thousands of years and backpedaling on meeting carbon sequestration targets. And unlike other ecosystems, once disturbed, recovery in the desert is so long-term it should be considered as a non-option.

Utility Scale Solar and Avoidance of Desert Disturbance

Joan Taylor. Chairperson, California Conservation Committee and California/Nevada Desert Committee of Sierra Club.

CA Senate Bill 100 established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045. To meet this goal, the California Energy Commission, California Public Utilities Commission, California Air Resources Board SB 100 Joint Agency Report estimated a need for an additional 70,000 megawatts (MW) of utility-scale solar to come online by 2045 in its Core Scenario (CEC 2021). Notably, the Core Scenario assumed high electrification demand but did not factor in any advances in renewable technology or in tools to manage peak load, so this estimate can properly be considered conservative.

Based on the most recently approved large utility-scale solar project in California, 5.02 acres are required to develop one megawatt of ground-mount single-axis tracking utility-scale solar with four hours of battery storage, including generation ties and other infrastructure (California Water Boards 2021). This equates to approximately 350,000 acres of land or other surface on which to mount PV panels. Even were one to use the now-outdated number of 7.1 acres per megawatt that was assumed nearly a decade ago by CEC (CEC 2014), the total acreage requirement for utility-scale solar would be less than 500,000 acres. For context, there are over 105 *million* acres in California.

There are numerous feasible options for developing utility-scale solar in California that can deliver the estimated need for new utility-scale solar and provide increased local jobs and other benefits, without disturbing intact desert. Some of these include:

- Water-deprived agricultural lands in the Central Valley estimated to be a minimum of 500,000 acres (Hanak et al, 2019) or as much as 900,000 acres (Escriva-Bou et al, 2023)
- 250,000+ acres of selenium- contaminated land in the Westlands Water District
- 200,000+ acres of parking lots in California (USGS 2019)
- 11,500 MW of capacity on large commercial/industrial rooftops near substations (RETI 2009)
- 4,000 miles of canals and 16,000 miles of highway right of ways
- Agrivoltaics (ie, slightly elevated or spaced photovoltaic panels) on a portion of the 40+ million acres of farm and ranch lands throughout the state (CDFA)

Examples of appropriate utility-scale solar sites and potential additional renewable capacity

Preferred Sites	Acres	Total potential generation
Water-deprived Ag Lands Central Valley	**500,000 – 900,000**	**100,000 MW – 250,000 MW**
Selenium contaminated land, Westlands Water District	**250,000**	**50,000 MW**
Parking Lots in CA	**200,000**	**40,000 MW**
Large commercial/industrial rooftops near substations	**n/a**	**11,500 MW, min (this 2009 estimate is outdated)**
20,000 miles highway & canal right of ways (est 100' wide)	**240,000+**	**47,000 MW, min**
TOTAL	**1,190,000 – 1,590,000**	**248,000 – 398,00 MW**
Agrivoltaics on 40+ million acres farm & ranch lands	**40,000,000+**	**Millions of MW**

While utility-scale solar that is sited remote from load is dependent on high voltage transmission, utility-scale solar that is generated "In Front of the Meter" on large rooftops and parking lots at load centers is not dependent on the larger grid. Urban and peri-urban solar eliminates the capital costs, delay, average 7%-line energy losses, steep monthly ratepayer charges for new transmission capacity and inherent lack of reliability of electric power that relies on long-distance transmission. Moreover, transmission costs are rising faster than the cost of the energy wheeled, while PV prices are falling (CPUC 2021), making solar sited at load more attractive for ratepayers, not to mention the benefits of local jobs and energy reliability. But if the full estimated need for utility-scale solar cannot be met on the distribution grid, the alternative of siting solar on water-deprived or contaminated lands and/or utilizing agrivoltaics on a small fraction of the state's 40 million acres of farm and ranch lands can easily absorb the balance in a win-win for landowners as well as the environment (DOE 2023).

The potential solar capacity of the above options far exceeds the energy agencies' projected need for an additional 70,000 MW of new utility scale solar to meet the state's 2045 decarbonization goal. Clearly, the above options are the preferred resources to avoid land-use impacts and societal costs of developing transmission-dependent solar on intact desert lands in the California desert.

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X. Policy Strategies and Tools to Maximize Carbon Sequestration and Conservation Values

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Public Policy Coordinator, Mojave Desert Land Trust

The state of California has long been recognized for its leadership in transitioning towards new, clean energy sources to reduce CO_2 atmospheric emissions. There are, however, two aspects to emissions reductions work.

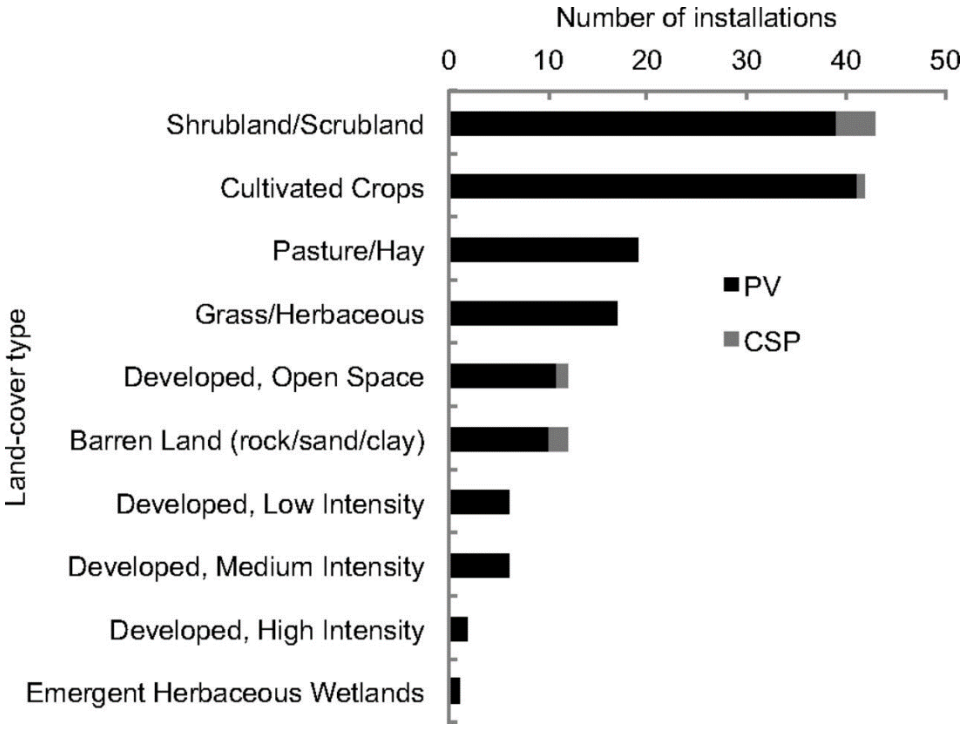
The first is "what". This piece is on track. The state has diligently passed legislation and dedicated millions of dollars towards reducing carbon emissions through technological innovation and utilizing our natural and working lands to reach net zero.

The second aspect of carbon emissions work is "how." While the state has rolled out dozens of utility scale solar energy projects (USSE's) at an accelerating pace across desert lands, this has taken place at the expense of disturbance of intact desert lands, which counterproductively serve as significant carbon sinks. The irony is that we are releasing carbon into the atmosphere by disturbing desert lands and their long-term sequestered carbon while building infrastructure intended to reduce atmospheric carbon. On this front, California has not yet realized fully its leadership potential. How these transitions are carried out

is based on siting decisions made in advance. For instance, China has directed their energy transition efforts towards utility-scale, ground-mounted PV [photovoltaic] panels, whereas Germany has achieved about 90% of its transition development within a built environment.

Several studies have revealed that regulations and policies in California have deemphasized solar growth and development within the built environment close to final destinations to meet demand, and instead favored development within shrublands and scrublands. Hernandez et al. (2015) note that carbon sequestration, among other ecosystem services including groundwater depletion and movement corridors for wildlife, may be adversely impacted globally by land cover conversion of shrubland and scrubland ecosystems.

Shrublands and scrublands have borne the brunt of land use conversion in our state's efforts to pursue USSE's on a massive scale, while developed regions remain largely underutilized.



Hernandez et. al. 2015.

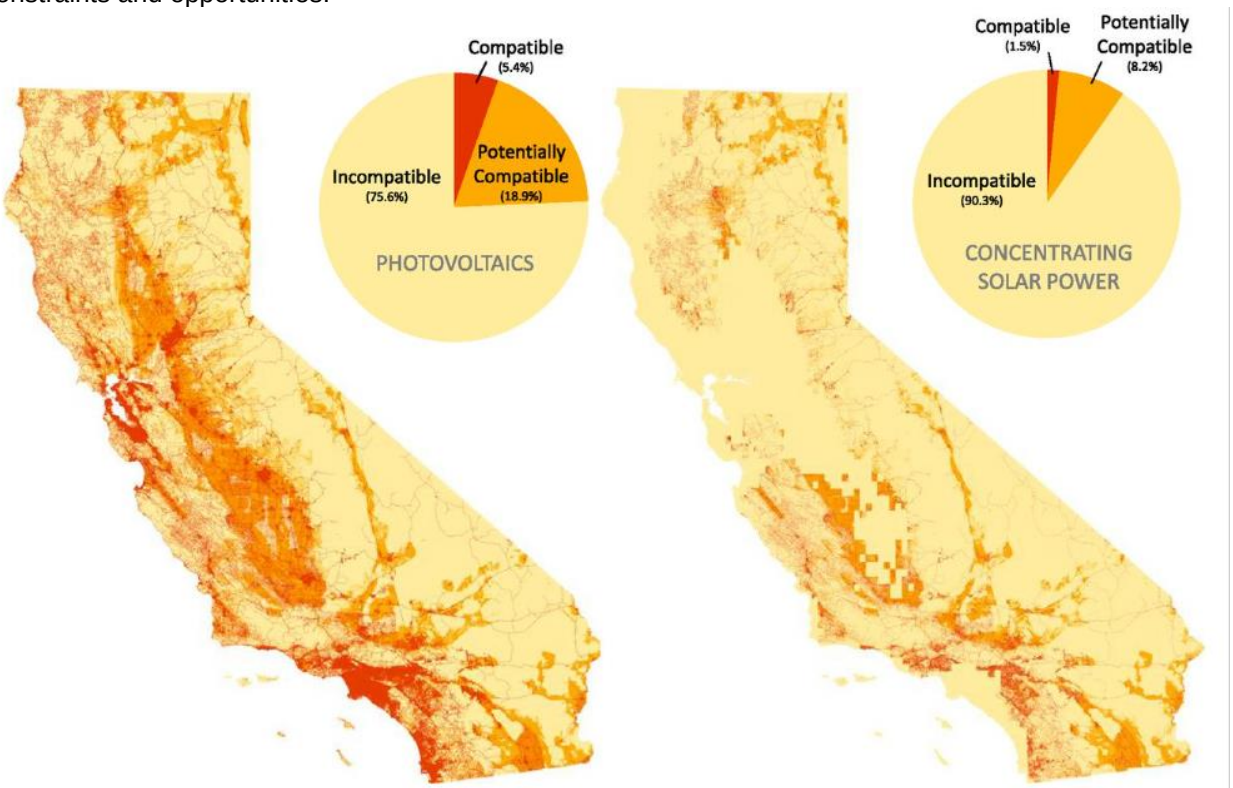
Number of photovoltaic (PV) and concentrating solar power (CSP) installations (planned, under construction, operating) by land cover type in California; represented in order of most installations to least for both technologies.

How do we, as policy and decision-makers, carry out the task of addressing the "how" aspect of transition to clean energy so that the desert's carbon sinks remain undisturbed and intact?

There are **planning tools** currently available that allow decision makers the opportunity to simultaneously develop solar installations on desert lands, while protecting conservation values including carbon sequestration all at once. This is the kind of pioneering work that establishes California as an environmental leader.

One such tool is the **Carnegie Energy and Environmental Compatibility [CEEC] model,** a multiple criteria model that quantifies each solar installation based on environmental and technical compatibility. The CEEC model is a decision support tool that develops a spatial environment and technical

compatibility index that outputs 3 tiers: Compatible, Potentially Compatible, and Incompatible. The model was designed for use in California and can identify environmentally low-conflict areas based on resource constraints and opportunities.



The state of California classified according to the CEEC Compatibility Index (Compatible, Potentially Compatible, Incompatible) and area (percentage) within each class for photovoltaic (PV) and concentrating solar power (CSP) technologies.

Hernandez et.al., 2015

A second tool of interest for decision-makers seeking to integrate the advancement of USSE's with conservation of our desert lands is a framework proposed by a group of researchers led by Dr. Rebecca R. Hernandez of UC Davis. **Techno-ecological synergies [TES]** engineers the mutually beneficial relationships between technological and ecological systems to bolster the sustainability of solar energy across a suite of environments including land, water, and built-up systems. The intent of applying the TES framework to solar energy technologies is an effort for "sustainable engineering" to minimize unintended consequences on nature as we rapidly advance USSE's on our natural and working lands.

The authors propose expansion of solar energy engineering principles to include both economic and ecological systems based on a synergistic relationship between technology and the environment. The outcome of TES produces products relevant to the technology end of development (PV module efficiency and grid reliability) *as well as* support for ecosystem services such as carbon sequestration and storage, water-use efficiency, and wildlife habitat. The research team offers 20 potential TES outcomes and discusses metrics and assessment methods to measure TES flows.

One example of a TES opportunity is optimizing land resources. The most degraded lands sites, for example EPA Superfund sites, could produce about 38% of total US energy consumption (based on 2015 assessment). At the same time, degraded lands function as substitutes, sparing undisturbed land with greater capacity for carbon sequestration. Moreover, the negative effects of land cover change and

disturbance such as release of GHG emissions, dust release, and soil-borne pathogens are reduced or eliminated.

Further examples of optimizing land resources include co-location of other renewable energy formats (such as wind turbines) adjacent to solar utility, with benefits compounded when this takes place on already degraded land. The number of potential beneficial outcomes for individual TES's ranges from 6-13; that is, there are substantial benefits to be gained by the synergistic framework proposed by this system.

While the commitments to transition to clean energy are moving rapidly, it may be necessary to make good use of policies to embed solar energy TESs into the economics of planning.

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XI. Conclusion

To fully realize the value of desert lands as part of our state's efforts to sequester atmospheric carbon, the desert must be recognized as a significant carbon sink -- *and it needs to be left undisturbed*. Unlike other ecosystems, it has a unique time scale that would require hundreds to thousands of years to recover from disturbance. The highest capacity regions for desert carbon storage, including microphyll woodlands and desert bajadas, should be identified as the top priority regions for conservation. And the state must also place high importance on the "how" part of transitioning to clean energy by careful pre-planning and siting of renewables on already disturbed desert lands and developments. We only get to do this once, so it needs to be done right.


SIERRA
CLUB
CALIFORNIA


MOJAVE
DESERT
LAND
TRUST


California
Native Plant
Society


Transition Habitat
CONSERVANCY


DEFENDERS
OF WILDLIFE


CONSERVATION
LANDS
FOUNDATION


CALWILD


AMARGOSA
CONSERVANCY


SIERRA NEVADA
ALLIANCE


COFEM
CONSEJO DE
FEDERACIONES
MEXICANAS®


NATIVE AMERICAN
LAND CONSERVANCY


MBCA
morongo basin conservation association


The SummerTree Institute


Oswit
Land
Trust


EHL


THE WILDLANDS
CONSERVANCY


epic


CactusToCloud
Institute


CENTER for
BIOLOGICAL
DIVERSITY
Because life is good.


Robert Redford
CONSERVANCY
for Southern California Sustainability
PITZER COLLEGE


Wildlands
NETWORK


FRIENDS
OF THE INYO
SINCE 1986

February 27, 2024

Subject: Update to Natural and Working Lands Climate Smart Strategy
naturebasedsolutions@resources.ca.gov

California Natural Resources Agency
California Environmental Protection Agency
California Air Resources Board
California Department of Food and Agriculture

Dear Agency Members,

This letter is in response to California Natural Resource Agency's (CNRA's) request for public input to inform the update to the Natural and Working Lands (NWL) Climate Smart Strategy as mandated by AB 1757. We appreciate the opportunity to provide input and expertise to the state agencies currently engaging in this process and recognize the importance of adhering to the highest standards of scientific practice for the greatest outcome for the NWL Climate Smart Strategy in accordance with the legislation.

This letter has been written by the Science Team within the Inland Deserts Working Group. We are a diverse group of desert scientists, desert experts, and dedicated desert conservationists. Our areas of expertise include carbon sequestration in desert soils, climate change impacts to the desert ecosystem, biological diversity in the desert ecosystem, desert native plants, and large-scale utility projects across desert lands. Collectively, we have spent well over a century studying and protecting California's deserts. Our work has been shaped entirely by scientific data and peer-reviewed research.

Our first comment concerns conflating deserts with other “Sparsely Vegetated Lands.” This is a scientifically inaccurate miscategorization that acts as a barrier to carrying out the goals of AB 1757, which are intended to promote climate-smart land management and deliver on our state’s climate goals via natural and working lands.

Miscategorizing deserts as simply analogous to other “sparsely vegetated lands” without recognizing California’s desert ecosystem as a category unto itself creates an inaccurate foundation and starting place to fully exploit the carbon sequestration, biodiversity, and cultural values of California’s desert ecosystem. The absence of a distinct ecosystem category only serves to perpetuate the misunderstood narrative that has long surrounded our deserts. Scientific research has turned this narrative around, and it is long overdue for policy efforts to catch up and integrate data-driven research into its work. The starting place for this to take place is to categorize our state’s desert region properly.

Desert lands cover over 25% of our state. They differ significantly from beaches and “rocks and ice” in function, ecosystem services, vegetation types, response to fire, and capacity for restoration, making the grouping of them with these sectors wholly misguided. The distinction of the desert region was recognized by Congress in 1976 when they designated 25-million acres of land in Southern California as the California Desert Conservation Area through the Federal Land Policy and Management Act, or FLPMA (1).



BLM California Desert Conservation Area Boundary
Conservation Biology Institute 2014
https://databasin.org/maps/new/#

In addition to the designation and recognition of our state's desert ecosystem by legislation, the Intergovernmental Panel on Climate Change (IPCC) produced the 2022 CCP3 report titled "Deserts, Semiarid Areas and Desertification"(2). The cross-chapter report outlines projected impacts to desert ecosystems as a result of climate change. The document notes, "Deserts and semiarid areas are in 'drylands', which comprise hyperarid, arid, semiarid and dry sub-humid areas." The authors note that "Drylands host unique, rich biodiversity…and provide important ecosystem services…" (p. 2199). Most relevant to the work of AB 1757, the CCP3 Report found that "Semiarid ecosystems have a disproportionately large role in the global carbon cycle, driving trends and interannual variability of the global carbon sink" (p. 2201).

Our second comment concerns the distinction between desert lands and other types of "Sparsely Vegetated Lands".

Beach vegetation is subject to regular catastrophic events (e.g., inundation by storm surge) that select for relatively short-lived species that can rapidly reestablish themselves via seeds or resprouting. Red Sand Verbena (*Abronia maritima*) and Beach Saltbush (*Atriplex leucophylla*) recolonize within weeks of being washed out by a spring tide. These often have extensive, though relatively shallow root systems, which are limited by salt water beneath the fresh water lens (3).

Alpine tundra is the major plant community of high elevation "bare rock and ice". Most species are deeply rooted, though only in relation to total plant size. Generally small and always low growing, these plants often exist as a mat, a growth habit that protects the plant from freezing winter winds. A dinner-plate sized specimen of Moss Campion (*Silene acaulis*) might be hundreds of years old, a few centimeters tall, and with a taproot extending a foot or more into the shallow soil (4).

Deserts are very different from either of these ecosystems, with a mix of drought-avoiding (spring) annuals, perennials with roots that reach many meters to deep sources of water, and succulents with extensive shallow roots to take full advantage of infrequent rain.

Designating the "desert" as a separate category is not excessive "splitting" of vegetation types. In a broad sense, there are three separate deserts within the state of California (out of four in North America). All three desert provinces support significantly different vegetation assemblages. All are fundamentally different from assemblages on beaches or in areas of alpine tundra.

Our third comment is related to the second one. At the Natural Working Lands review on February 7, one of the moderators opined in response to our concerns, that a

separate “desert” category is unnecessary because the existing model accommodates areas of “chaparral” within the otherwise “sparsely vegetated” desert, implying that creosote bush bajada is functionally equivalent to chaparral. This interpretation can be shown to be incorrect by examining the Net Ecosystem Exchange (NEE) rates of the various vegetation types, listed in a table in Section IV of our report, “AB 1757 Nature Based Solutions: Desert Sector” (5). In this table, one reads that 100-year-old Chaparral sequesters 520 kg Carbon per hectare per year in wet years, and 180 kg/HA/yr in dry years. By comparison, Creosote Bajada scrub sequesters over 1000 kg Carbon/HA/yr, and is less impacted by yearly rainfall, as their deep roots reach groundwater or other deep sources of water.

There are many other differences. For instance, vegetation density varies between both ecosystems: chaparral is not normally sparsely vegetated but is characterized by dense vegetation, unlike desert vegetation. Both chaparral and desert are drought tolerant, but fire adaptation in chaparral is a component of the natural ecosystem process, whereas the desert is poorly adapted to wildfire with low capacity for recovery.

Precipitation patterns between the two ecosystems also differ. Chaparral is dependent upon winter rains, which are more effective than summer rains as a function of evapotranspiration. Deserts are subject to precipitation that is either unpredictable or seasonal with largely summer monsoonal precipitation. Summer monsoons are generally short, high-intensity bursts in patches that run off. The desert’s distinct precipitation pattern results in the widely dispersed nature of desert vegetation and elevates the importance of desert microphyll woodlands. Reliance on precipitation patterns as justification for linking categorization of ecosystems is flawed in that this scheme dismisses significant ecosystem processes and differences. The ecology of the chaparral and desert ecosystem types is radically different. This is evident when considering two regions – Tucson and San Diego - that receive similar levels of precipitation but are represented by very dissimilar ecosystem vegetation types.

Our fourth and final comment is a response to CNRA’s request for comment on the goals listed in “Nature-Based Climate Solutions” and “Cross-Cutting Priorities”. We are only commenting on Climate Solutions goals for “Sparsely Vegetated Lands”.

Deserts comprise over a quarter of the land area of California. (The exact proportion depends on how one defines “desert”). By comparison, beaches and alpine tundra (combined) are significantly less than one percent of the land area of the state (6). So all sections of “Sparsely Vegetated Lands – Priority Nature-Based Climate Solutions” in CNRA’s documentation should be replaced by sections mainly applicable to desert lands. In particular, the current Sections D and E apply only to beaches. (We do not think this is a desirable outcome; it merely illustrates some of the severe limitations of a miscellaneous “Sparsely Vegetated Lands” category.)

Specifically, we agree with Goal A to “protect [lands] from disturbance and conversion to other land types”.

We would limit most efforts on Goal B ("restore native plants") to apply only to riparian areas. As we discussed in our report "AB 1757 Nature Based Solutions: Desert Sector", restoration of most desert ecosystems – especially replacing carbon lost when the desert is disturbed – is unrealistic in any reasonable time scale. This goal should be replaced by one that provides pathways to preserve intact desert lands.

Goal C ("appropriate use of cultural fire") has limited applicability in deserts, e.g. palm oases. As we have noted elsewhere, our deserts are not adapted to a chaparral-like fire regime. Efforts in this area should be redirected to reducing fuel loads from invasive grasses that fuel most destructive desert fires.

Goals D and E concern beaches and have nothing whatsoever to do with the desert. In a "Sparsely Vegetated Lands" category, we are fine with the recommendations being applicable to non-desert areas, though fairness suggests that one of them be allocated to "bare rock and ice" (more generally known as alpine tundra).

We have no comments and are satisfied with "Cross-Cutting Priorities for Climate Smart Land Management," as currently written.

Thank you again for the opportunity to comment.

Sincerely,

Dr. Michael Allen, Ph.D. Distinguished Professor Emeritus. Department of Microbiology and Plant Pathology, University of California, Riverside

Susy Boyd, MNR. Master of Natural Resources, Forests and Climate Change. Oregon State University

Pat Flanagan, B.A. Biology. California State University, Long Beach. Director, Morongo Basin Conservation Association

Robin Kobaly, M.S. Biology and Plant Ecology. University of California, Riverside. Executive Director, The Summertree Institute

Arch McCulloch, M.S. Computer Science. Azusa Pacific University. B.S Geology / Computer Science. California State University, Dominguez Hills. President, Mojave Chapter, California Native Plant Society

Joan Taylor, Governing board of the Coachella Valley Mountains Conservancy, and boards of Friends of the Desert Mountains and The Wildlands Conservancy. Chairperson, California Conservation Committee and California/Nevada Desert Committee of Sierra Club

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Payahuunadü / Eastern Sierra
Friends of the Inyo

Damon Yeh
California Project Manager
Wildlands Network

Dr. Bob Przeklasa
Executive Director
Native American Land Conservancy

Footnotes:

1. Bureau of Land Management California Desert District Office. (n.d.). *National Conservation Lands of the California Desert*. U.S. Department of The Interior. Retrieved February 21, 2024, from https://www.blm.gov/programs/national-conservation-lands/national-conservation-lands-of-the-california-desert

2. Mirzabaev, A., L.C. Stringer, T.A. Benjaminsen, P. Gonzalez, R. Harris, M. Jafari, N. Stevens, C.M. Tirado, and S. Zakieldeen, 2022: Cross-Chapter Paper 3: Deserts, Semiarid Areas and Desertification. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2195–2231, doi:10.1017/9781009325844.020.

3. *Native Beach Plants | Explore Beaches*. (n.d.). https://explorebeaches.msi.ucsb.edu/sandy-beach-life/native-beach-plants

4. Doak, D. and Morris, W. *Life and times of tundra plants: How long do they live, and how they are responding to climate change (U.S. National Park Service)*. (n.d.). https://www.nps.gov/articles/aps-v12-i1-c3.htm

5. Allen, M., Boyd, S., Flanagan, P., Kobaly, R., McCulloch, A., Taylor, J., Barrows, C., & Barrows, C. (2024, February). *The California Desert's role in 30X30: Carbon sequestration and biodiversity*. Retrieved February 23, 2024, from https://static1.squarespace.com/static/61815979dfa7a7572c721a67/t/65c3fdd845022354cdacf1b7/1707343322633/C+Sequestration+Desert+Sector+Report+Revised+2.7.24+%281%29.pdf.

6. California's coastline is about 1350 km long. The state's area is 423,970 sq km. If all coastline is beach and is 1 km wide, this is 0.3 percent of the state. Alpine tundra is more difficult to estimate, but almost certainly covers less area.

MBCA
morongo basin conservation association
Post Office Box 24, Joshua Tree CA 92252 mbconservation.org
MBCA is a 501(c)3 non-profit, community based, all volunteer organization

March 29, 2024

Keith Gardner, Community Development director
Email: kgardner@29palms.org

Scoping comments for
E-Group PS Solar Project

Project Location: North of Two Mile Road and west Noel Knolls Road. Assessor's Parcel Nos. 0612-201-01 and 0612-201-05

Project Description:
"*The 184-acre solar array portion of the site is referred to herein as the "solar project." The solar project will have the ability to generate 50 megawatts (MW) of solar power*." (NOP) There is no mention of energy storage in the NOP or Initial Study documents.

Comment:
According to the Solar Industries Association[1]
"Depending on the specific technology, a utility-scale solar power plant may require between 5 and 10 acres per megawatt (MW) of generating capacity."

- Using these numbers, the proposed 184-acre solar array will produce, at the most, 36.8 MW of solar power. At the E-Group public meeting we were assured the Project would produce 50 MW of solar energy.

This proposed productivity must be verified.

In the E-Group presentation on March 20th to interested community members, Mr. Smith stated that if the City was not interested in permitting the solar project the developer would utilize AB 205, although that was not their first choice.

- AB 205 require the solar project to have a generating capacity of 50 MW or more (see above) and an energy storage system capable of storing 200 megawatthours or more of electricity.[2]

Does the E-Group solar project meet the AB 205 requirements?

[1] https://www.seia.org/initiatives/land-use-solar-development#:~:text=Depending%20on%20the%20specific%20technology,(MW)%20of%20generating%20capacity
.
[2] https://lpdd.org/resources/californias-sb-205-2022/

CEQA Elements

I Aesthetics

c) There is potential for the Project to substantially degrade the existing visual character or quality of public views of the site and its surroundings…

When analyzing the impacts and possible mitigation measures please do not consider the use of "native desert plants" that are greener or taller that the surrounding creosote, as was suggested by the developer during his meeting with community members on March 20, 2024.

d) Create a new source of light or glare.

"However, the project will result in expanses of reflective solar panels over the northern 184 acres of the site. "

When analyzing for glare please note this glare in Biological Resources d) since the glare has the potential to interfere with migrating birds mistaking the area as a body of water. The panels are at a fixed 21-degree angle, facing south but could confuse the shorebirds, ducks, herons, and egrets flying north.

Please review Cornell University eBird Hotspot for Barker Dam in Joshua Tree National Park[3] is due south of the E-Group project. This is a new danger for water birds and is cumulative with Cascade solar (150 acres) in Joshua Tree, and SEPV2 and SEPV8 on Lear Rd. (120 acres), and SEPV9 on Indian Trail (80 acres).

And see the pdf attached to the email *Why Do Birds Crash Into Solar Panels*.

III Air Quality This Project will

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

c) Expose sensitive receptors to substantial pollutant concentrations.

VII Geology and soils This Project will

b) Result in substantial soil erosion or the loss of topsoil.

Downwind receptors living in the Morongo Basin east of Joshua Tree solar projects have considerable experience with the dust from the Cascade Solar Project on 150 acres in Joshua Tree; and SEPV2 and SEPV8 built together on 120 acres on Lear Avenue and SWPV9 on 80 acres on Indian Trail in 29 Palms. All three projects and the proposed E-Group Project are on a Sand Transport Path in the Mojave Desert described in Zimbelman et.al *Sand Transport Paths in the Mojave Desert*[4]

[3] https://ebird.org/barchart?r=L209809&yr=all&m=

[4] Zimbelman et.al. Sand transport paths in the Mojave Desert https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=SAND+TRANSPORT+PATHS+IN+THE+MOJAVE+DESERT%2C+SOUTHWESTERN+UNITED+STATES&btnG=

MBCA

morongo basin conservation association

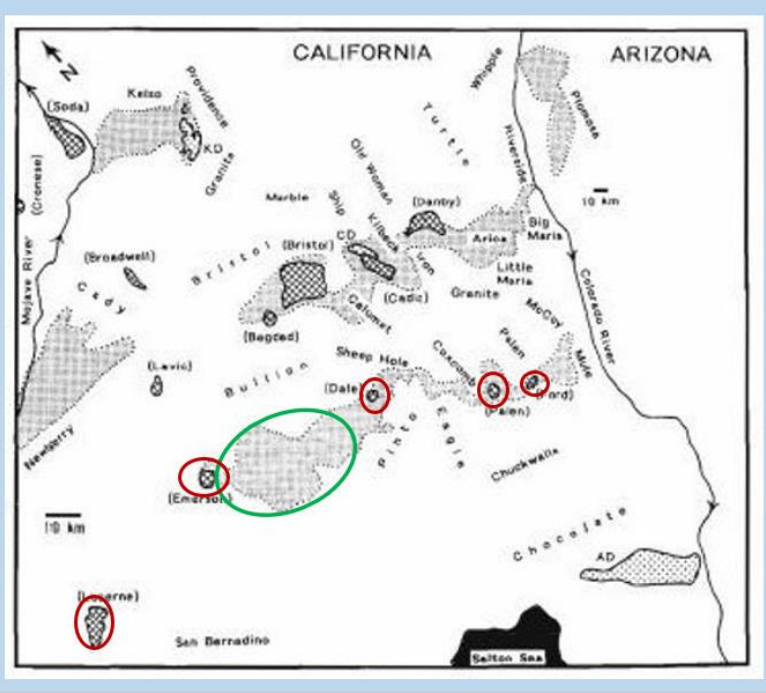


Figure 1:
Simplified sketch map of the Mojave Desert region. The sand deposits are shown in the dotted patterns. The sand source playas are shown in the gridded pattern. (Zimbelman Page 105)

Green circle and red circles added by this author for illustration.

Within the Green Circle
Dust sources include Cascade Solar, SEPV 2, SEPV8, and SEPV9 Solar facilities on a total of 350 acres.

Active Sand Sources – red circles
Emerson Dry Lake and Dale Dry Lake in the Morongo Basin.



Figure 2: The Green Circle area shown on Google Earth. The blue diamond upwind from the City of Twentynine Palms is the proposed 184-acre E-Group Solar Project.



Figure 3: Dust rising off the 150-acre Cascade Solar in Jushua Tree on 3/28/2016.
The facility went on line 4/2014.



Figure 4: Dust rising off Cascade Solar 5/2022. Photo curtesy Laraine Turk.

The Mojave Desert Air Quality Management District (MDAQMD) bases their analysis on readings from ambient air monitors. The map on the MDAQMD website, March 28, 2024, shows no monitors east of Lucerne Valley. They also have located Purple Air Monitors throughout their district. The Purple Air monitors default is PM2.5. There are 2 Purple Air monitors located east of the proposed E-Group. Project. One is in Desert Heights[5] and the other in Indian Cove. [6]
The Initial Study states "*The nearest monitoring station to the Project is located on Adobe Road, east of the Project site.*" (page 20)
Please clarify. If such a monitor exists, the measurements are not visible to the public so not useful.

VII. Geology and Soils This Project will
b) Result in substantial soil erosion or the loss of topsoil.

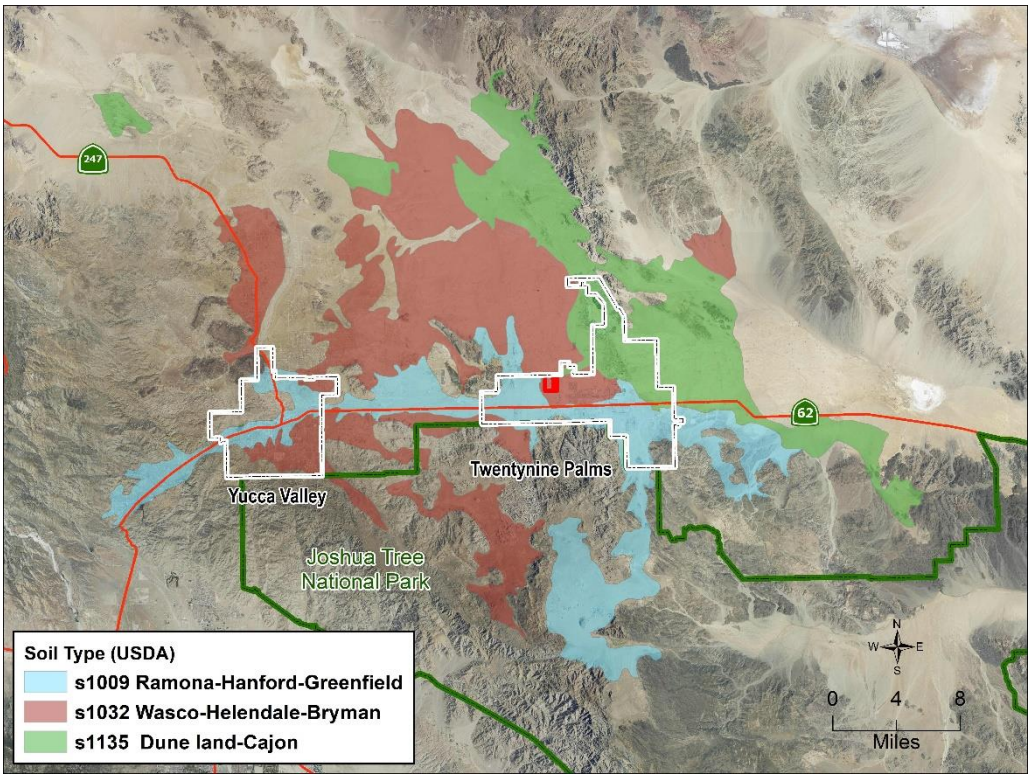


Figure 6: Soil types in the Morongo Basin.

The red dot locates the solar project.

The Soil Type is **1032 Wasco-Helendale-Helendale-Bryman**.

For the soil type descriptions NRCS recommended I consult the Soil Survey of San Bernardino County CA Mojave River Area, Soil Conservation Service, 1986.

[5] The Desert Heights monitor is at this author home and installed to track the dust from the listed solar fields.
[6] https://map.purpleair.com/1/ls/mPM25/a10/p604800/cC0#10/34.137/-116.1599

- "*Wasco sandy loam 0 to 2% slope: "Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate…**Clearing, or any other disturbance that destroys the soil structure and vegetation, can result in increased soil blowing,** barren areas, and lower overall production*."
The 2 to 5% slope has a similar description. (Page 66)
- *Helendale Loamy sand for both 0 to 2% slope and 2 to 5% slope: "Runoff is medium, and **the hazard of soil blowing is high***." (Pages 41-42)
- *Bryman loamy fine sand for both 0 to 2% slope and 2 to 5% slope: "Runoff is slow, and the hazard of water erosion is slight. **The hazard of soil blowing is high***." (Page 22) (My underlines and bold for emphasis)

Local downwind residents have suffered from fugitive dust both inside and outside their homes when land was cleared for solar projects. See Figures 3 and 4. Lessons learned when reviewing proposed Projects include checking the Soil Type (Figure 6) to anticipate the long-term impacts from soil disturbance and fugitive dust blowing for the duration, operation, and following the Project's closure. The MDAQMD is operating from experience that does not include the desert sand transport paths. The Great Basin Air Pollution Control District has dust control plans based on research on the dry Owens Lake. Crushed gravel may be the reasonable, long-term solution.[7]

IV Biological Resources This Project will effect adversely
a, b, and d.

VIII Greenhouse Gas Emissions This Project will
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Please add to the sources used when analyzing the Biological Resources and Greenhouse Gas Emissions Elements the scholarly report California Desert's Role in 30X30 Carbon Sequestration and Biodiversity.[8] This report was presented to the California Natural Resources Agency [CNRA], California Air Resources Board [CARB], and California Department of Food and Agriculture [CDFA] on the importance of desert carbon sequestration as part of the State's AB 1757's commitment to reaching our state's broad climate change goals.

From the **Executive Summary**

" *…One of the most persistent mischaracterizations is that the California desert is a barren wasteland with low biodiversity and limited capacity for carbon storage. Scientific data refutes these inaccuracies, and this report will demonstrate that the California desert has extremely high biodiversity and is a significant carbon sink with tremendous opportunity to sequester carbon and help our state meet is atmospheric carbon reduction goals.*

[7] https://www.gbuapcd.org/OwensLake/DustControls/
[8] Pdf attached to email.

There are 2 key takeaway messages from this report:

1. **The desert's carbon storage process differs significantly from more widely understood sectors such as forests, grasslands, chaparral, and wetlands.**

2. **Because of the distinct carbon storge process found in the desert ecosystem, there is one recommended strategy to maximize the desert sector's contribution to carbon emission reduction: Intact desert lands need to be left undisturbed.**

Also attached as a source is the follow up letter to Nature Based Solutions at NRCA[9]

The MBCA appreciates this opportunity to comment on the E-Group PS Solar Project. These comments were prepared by a board member who lives downwind from the solar projects described above and speaks from experience.

Sincerely,

Pat Flanagan

Board member, MBCA
Resident of Desert Heights

[9] Pdf attached to email



Why do birds crash into solar panels?

This machine learning study uses drone-spotting technology to find out

Posted on 14 SEP, 2020

Kevin Jackson

Speed read

- Hundreds of thousands of birds die annually from collisions with solar panels
- Investigating these deaths takes time and effort that solar facilities don't have
- Machine learning and computer vision helps researchers discover more about what's going wrong

Billions of birds die annually from collisions with windows, communication towers, wind turbines, and other human-made objects. One reason is that birds see a reflection of the sky in the object and think they're flying into an unobstructed path.

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This is



Thousands of birds die each year *from colliding with solar panels. New research hopes to better understand—and ultimately prevent—those deaths.*

even a problem for solar panel facilities, which see up to 138,000 bird deaths per year in the US from collisions with equipment. Though damage to the solar panels is minimal, officials worry about the impact these structures have on local wildlife. To combat the problem, the Department of Energy (DOE) has awarded Argonne National Laboratory $1.3 million to develop a system that can automatically monitor bird activity.

Adam Szymanski, a software engineer at Argonne, spoke with us about the challenges the team face, as well as how a model designed to track drones is already working to keep an eye on birds.

Too much to do

Argonne National Laboratory

Drones

Wildlife

Energy

Edge computing

Machine learning

Birds

At the moment, the only way to track bird deaths at solar panel facilities is to have a human walk around and collect the bodies. This prevents researchers from collecting a valuable amount of data. That's why Szymanski and his colleagues are working on a means to automate the process.



Learning to recognize birds. *A series of video frames are used for the computer model to learn what birds look like. Courtesy Argonne National Laboratory.*

"We've come up with a camera system that can automatically detect a moving object in the area and then classify if it's a bird or not," says Szymanski. "Then, the system should be able to classify if the bird collided with anything or what other activity it's actually doing. This is all done using machine learning and computer vision."

The researchers are relying on high-performance computing (HPC) to train this bird-spotting system.

Argonne Blues is being tapped for two important jobs: processing the data and training classification models.

“That's one great benefit of being at Argonne,” says Szymanski. “We have a fairly large HPC center right next door to my building.”

Currently, the team is working with ten hours of footage per day from eight cameras across a one-month timeframe. This is then broken down into thousands of five-minute clips, which are processed in parallel. The resulting data is then used to create a machine learning model that can detect if a bird is in a frame or not.

All of this is building toward an edge computing model which should be able to work within the camera itself. Processing this video data later on an offsite machine would defeat the purpose of devising a more efficient means of tracking birds, so it’s important that this kind of work eventually takes place in real time where the camera is.

The HPC-powered Argonne Blues isn’t the only resource the researchers drew from. In fact, the technology behind this bird identification system is based on a model that was built to detect drones flying in the sky.

Eye to the sky

To a



Real-time bird detection. *The ultimate aim of the study is to develop an edge computing model that will work within the camera itself rather than require processing offsite at a later date. Courtesy Argonne National Laboratory.*

computer, picking a drone out of a sky is not that much different than noticing birds. In both cases, the model needs to be trained to categorize random

items (i.e., a drone or not a drone) and do so in real time at the edge.

While many drone detection systems try to locate drones via their radio signals, it doesn't always work since drones don't need to transmit signals at all times. That's why Szymanksi helped create a computing model that uses upward-facing cameras to monitor the skies for drones.

Despite the similarities in the two tasks, Szymanski is quick to point out the differences.



Flight paths. *Red boxes indicate birds spotted at Argonne's solar facility. Flight paths prior to perching are shown with red lines. Courtesy Argonne National Laboratory.*

"Drones usually have some kind of propeller that a computer can pick out," says Szymanski. "A bird flaps its wings as it's flying, so when its wings are out it's fairly recognizable as a bird. But when its wings are in (for example, when gliding) it essentially just looks like a black dot, so it becomes harder to classify."

The new bird detection model also differs in what it looks at. While the drone model monitored an empty sky, the cameras at solar facilities will be directed at the panels themselves. This brings more objects into the camera's line of "sight," which complicates the detection process. But Szymanksi believes all this hard work is toward a good cause.

The number of birds that perish at solar panel facilities pales in comparison to other environmental calamities. But for a long time, we humans have put our needs above those of the natural world. Projects like this one, that combine conservation with renewable energy are vital because they are a tangible recognition that nature's wellbeing shouldn't be an afterthought.

Read more:

- Tracking bird migration with AI
- Combating extinction one photo at a time
- Revealing wild cats



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From: Gina Kohn <ginasuz@gmail.com>
Sent: Friday, March 29, 2024 5:04 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: E-Group Solar Project

CAUTION: THIS EMAIL ORIGINATED OUTSIDE THE ORGANIZATION. DO NOT CLICK LINKS OR OPEN ATTACHMENTS UNLESS YOU HAVE VERIFIED THE SENDER AND KNOW THE CONTENT IS SAFE. CAUTION

Dear Mr Garder,
Attached is my comment letter regarding the proposed E-Group Solar Project.
Thank you for the opportunity to share my concerns,
Gina Kohn

City of Twentynine Palms
Keith Gardner
Community Development Director
kgardner@29palms.org

March 29, 2024

RE: E-Group PS Solar Project

Dear Mr. Gardner,

My name is Gina Kohn and I am a resident of Twentynine Palms. I am writing to you to voice my opposition to the proposed Solar Project in Twentynine Palms. My husband and I moved to the neighborhood of Harmony Acres in 2016 from Long Beach. Many reasons brought us to this fine city and residential neighborhood with beautiful sweeping desert vistas, clean air, and a more rural lifestyle. Knowing that the city of Twentynine Palms did not allow commercial solar farms since 2014 was also an additional benefit that we appreciated. I am not anti-solar power, when it is responsibly and thoughtfully built upon already disturbed land, on rooftops or atop carports.

I oppose this proposed commercial/industrial solar project being built in a residential zoned neighborhood, where it will undermine the aesthetics of a charming neighborhood that has been part of the city since at least the 1940's.

I oppose this proposed commercial/industrial solar project because it will have negative impacts on the resident's physical health, such as dust from grading the delicate desert topsoil that will forever be damaged and prone to creating more dust and dangerous small particulates, especially during our windy days which are becoming more commonplace and extreme with climate change. With this project's 35-year life span, it shows greed over the sanctity of a neighborhood and neglects the humans who have lived here, choosing to live in a neighborhood, not a commercial zoned industrial area.

I understand the huge amount of money that E-Group can save by connecting to the Carodean SCE Substation. E-Group is knowingly exploiting this neighborhood and desert tortoise, burrowing owl habitat for their own profits. The exploitation of the desert has become popular for outside profiteers who know nothing about the biodiversity here. Once the damage is done, there is no coming back. Does the city have concerns about the dust, short life span, and environmental impacts on the threatened species here? What about the long-term exposure to the dust particulates that will blow, affecting all peoples exposed to the dust traveling East over the city of Twentynine Palms?

I care deeply about the Desert Tortoise that lives on that land, who are already listed as endangered. We have lost 90% of the tortoise population within the last 40 years in this area. With the tortoise being such an important part of the legacy, history, and identity of Twentynine Palms, (The Casino is named for them) why would the City choose to infringe upon their habitat and contribute to their decline in this area? Even with mitigation, how can the city promise the tortoises will not be harmed, stressed, or killed by the mitigation requirements?

I understand the need for green energy, but undermining the people of this city who fought to stop solar farms due to the real harm it causes to the land, the animals and the humans who live and are invested here. We chose to move and live out the rest of our years here because of the health benefits the desert offers, including the aesthetics and quality of life.

I hope the City of Twentynine Palms will put people over profits and deny this irresponsible and destructive proposed solar farm.

Sincerely,

Gina Kohn
71212 El Paseo Drive
Twentynine Palms, CA 92277
ginasuz@gmail.com

-----Original Message-----
From: Chris Greedy <chrisgreedy@gmail.com>
Sent: Friday, March 29, 2024 4:20 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: 29 Palms Solar Farm

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CAUTION

Hello,

Please reconsider the proposed location of this solar farm. My family has owned the property closest to the project for more than 50 years. We enjoy being on the edge of town and the direct access to the natural habitat. We're afraid that this project will bringing nothing but devastating destruction and disturbances to this precious land. Displacing the desert tortoise that is an endangered species and incredible erosion to the natural habitat. The land is not flat as they're staying and grading and fill dirt will have to be brought in.
We don't see how this won't be an eyesore with this enormous project that will be surrounded by 7 foot tall fencing. Not to mention the incredible amount of water that will be required to establish the proposed landscaping to "hide" The project. California is in a massive drought, this alone would be an additional strain on our precious water resources. According to the proposal this entire farm will only generate 50 megawatts of power per year. That's hardly enough to even bother with!!

Please make our concerns known and let these corporations that 29 Palms can not e bought with the lies that are being placed on this project.

Thank you for the consideration.
Chris & Kurt Greedy

From: Peter Lang <ibbcrp@gmail.com>
Sent: Friday, March 29, 2024 5:03 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Your request for written comments regarding the draft Environmental Impact Report

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Dear Mr. Gardner,

Please see my attached PDF in response to your request for written comments regarding the draft Environmental Impact Report.

Thank you,

-Peter

Peter Lang
Director, Content Development
ABBYY
C: +1.530.470.3664
Peter.Lang@ABBYY.COM

Peter Lang

71350 Samarkand Drive
Twentynine Palms, CA 92277
530-470-3664

Keith Gardener
Community Development Director
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277
(760) 367-6799 x 1008

March 29, 2024

Dear Keith Gardener,

Regarding your request for written comments regarding the draft Environmental Impact Report that the city of Twentynine Palms is preparing, this letter is to express my opposition to the E-Group Solar Project within the city limits of Twentynine Palms.

I own the house closest to the water tower on Samarkand. So, I'm located downwind, East of this beautiful area where a for-profit industrial solar field should never be located.

Where does **true beauty** begin for the residents who enjoy the West side of Twentynine Palms? I'll tell you, on Samarkand, and the beauty really hits you as soon as you cross Sunrise heading west.. If you've never walked down Samarkand to see the sunset, you are missing out. No power lines, stunning vistas; it's the kind of penetrating beauty that will change you. Change your mood. Change your perspective. And allow you to relax and deeply appreciate exactly where we live.

And that's why so many use Samarkand for their running and walking routes. People hike and exercise their dogs daily on Samarkand; there's really a lot of people enjoying this stretch of land just west of Sunrise, in many different ways. I've been a runner since I was 18 and there's only one route that I take because it's the most beautiful. Samarkand, starting at Sunrise and heading west for 30 minutes and then I return. Running with these mountain views and the scent of creosote bushes, watching the desert wildlife and listening to the local birds—it all creates a serene and awe-inspiring experience, connecting me (and all who come here) deeply to the desert's beauty and tranquility. It is bliss.

Nobody asked E-Group to come and industrially transform this land. When I bought this house five years ago, we knew that the area E-Group is trying to change forever was **zoned residential**. That very much factored into our purchase decision. The city's development code 19 .18.030 bans utility scale solar facilities. "Commercial solar fields can be shown to have direct, adverse impacts to the ascetic quality of the desert vistas the community now enjoys, deleterious effects to the tourist industry that

the community depends on, potential adverse impacts to property values for the properties adjoining or surrounding such facilities, potential decreases in the quality of life for those individuals that reside with properties adjacent to or surrounding such civilities, and potential serious impacts to the biologic, cultural and social resources of our community.

No way I couldn't have written it better. The city nailed it. I should not be forced to experience a decrease in the quality of my life because of E-Group's desire for profit. The city and E-Group should not be empowered to decrease the property value of my house. The city and E-Group should not be allowed to change the view to the west of my house from beauty to blight.

If this project is allowed by the city, if the area is rezoned, I will feel betrayed. The city board members have been able to learn from past mistakes. Blowing dust is a major problem with the Lear solar farm. What did the city do? Place a moratorium on commercial solar farms. Bravo... let's never do that again! But now what exactly has changed? Maintaining air quality should be a top priority for city officials. With all the grading that would need to happen should this ill-begotten plan come to fruition, blowing sand and dust isn't hypothetical problem for city residents. It will be very real. For the city to change direction, rescind 19 .18.030, and rezone to facilitate this project is unconscionable.

The E-Group's communications strikes me as disingenuous. For instance, Robert Smith of the K&L Gates law firm keeps referring to this area as flat, but it is not at all flat, and extensive grading would be needed—greatly adding to the negative impact of blowing sand and dust and on the retention of flora and fauna. I guess if Robert Smith tells this lie enough times, he might think that people will start to believe it's true. We won't. The threatening, ham-handed language Robert Smith used in his May 17th letter is intended to pressure the city into approving the project, fearing it might escalate to the state level and Assembly Bill 205. I've heard more than a few Twentynine Palms residents refer to this as a bullying tactic. It's not appreciated.

Say no to rescinding code 19 .18.030. Allow no zone changes in the targeted area.

Cease any consideration of ever working with E-Group; they do not have our best interests in mind, period. We are merely the holder of a place within city limits that feel they can bulldoze, for their own profit. The city needs to be stewards of the environment, not destroyers of the environment. The aesthetics, the beautiful vistas, the quality of life, the fragile botanical and zoological diversity, the air quality, in the sense that the city is really looking out for its residents all hang in the balance.

Thanks for your time and please let me know if you have any questions.

Warm Regards,

Peter Lang
Twentynine Palms
Peter.Lang@ABBYY.com

March 29, 2024

City of 29 Palms
Keith Gardner
Community Development Director
kgardner@29palms.org

Dear Mr. Gardner,

As a citizen and nearby resident I am **against** the construction of the proposed E-Group PS Project. There are numerous issues that directly affect myself and the other residents in the surrounding areas, as well as the use of AB 205 to overtly bypass the City of 29 Palms 2014 ordinance of banning commercial solar farms within city limits.

Here are some of the issues and grievances I have with this proposed solar farm:

The applicants have selected untouched acreage west of a church and between residential neighborhoods for the site of this solar project, and they show no concern for the city's existing zoning codes or the voices of those who live here because of the open desert spaces and because of the City of 29 Palms ordinance that ***does not*** allow solar farms.

-If the Applicants had any concern for the citizens of this city why did they chose to build this solar farm in this location?

Answer: Because this location is close to an SCE substation.

During a meeting with nearby residents, the E-Group representative specifically stated that this was the reason for selecting this location. They could save millions of dollars for locating a solar farm close to an SCE substation, of which this is the Carodean substation off Two Mile Road.

Conclusion: As most big businesses, the E-Group is only in this for the money, as it already has proven with total disregard for the city's NO SOLAR ordinance or the zoning requirements.

Air Quality

Once any desert land is scraped of its natural landscape and foliage it will never fully recover and the movement of dust will be ever present. From the start of construction through time, without the natural landscape the dust will not be able to be controlled and the air quality will be forever affected.

Biological Resources

There are desert tortoises and burrowing owls on the proposed site. They are both listed as a threatened species by the California Department of Fish and Wildlife, and no matter of any mitigation measures, it is proven that removal and relocation of these threatened species would still adversely affect the survival of these diminishing creatures.

Land Use

Any time a Conditional Use Permit is required, a zoning change is required, or a Development Code and General Plan amendment is required to gain approval for a project it's a telling sign. Telling that many changes to the City codes are required just to accept one project within the city.

-Why should the City of 29 Palms accept these many changes for one particular project?

Answer: MONEY

The E-Group representative mentioned the "benefit package" the city would receive upon approving this project, and that it has yet to be determined how much. Unfortunately, the "how much" may be a determining factor if the Planning Commission and City Council are to approve this proposed project.

-Will the City approve this project based on the size of the "benefit package?"

AB 205

I am aware that AB 205 was signed to expedite the approval process of non-fossil fuels, and that the applicants, as stated, *will* go through the State if the City of 29 Palms does not approve this project.

-Has the City of 29 Palms consulted with attorneys to find if there is a way to prevent the overrun of their No Solar ordinance?

Hopefully the city has or will look into any legal means to deter this proposed project.

-Does the City of 29 Palms care that this is to be built near a church and residential neighborhood?

I am very sad that we, as citizens in a city that does not allow large commercial solar farms, may have to submit to bullying by a developer who **does not** care for the residents and citizens where it forcefully wants to develop for profit only. They made it very clear that the location was picked due to the proximity to an SCE substation, with total disregard of the City of 29 Palms' own ordinances, development codes, zoning and General Plan.

-If this large commercial solar farm gets approval, will this open the door to many more large commercial developers to who'd like to make a profit at the expense of the city and community?

I hope that you, Mr. Gardner, and others in the Planning Department and on the City Council, as representatives of this city, will do what you can to uphold the existing codes, ordinances, and zoning regulations, and STOP this ridiculously large commercial development to happen in our city.

Sincerely,

Russ Kohn
71212 El Paseo Dr.
29 Palms

From: jennifer schmidt <jennifermariposa@hotmail.com>
Sent: Friday, March 29, 2024 9:29 AM
To: Keith Gardner <kgardner@29palms.org>
Subject: Public Comment on E-Group's Proposed Solar Farm Project

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Good morning Keith,

Please see the following comment regarding the proposed solar farm project near Two Mile. Feel free to reach out to me with any questions or concerns. Thanks!

Public Comment—Proposed Solar Farm Project

I am a homeowner in the neighborhood just east of the proposed solar project, and as someone who lives and walks frequently in the area in question, I have many substantial concerns about this project.

First, the extensive grading and destruction of the land will be devastating environmentally on several levels. They will need to clearcut and grade the entire parcel where the panels are, and with that they will remove plants that are slow growing and cannot be easily replaced. The native creosote's root system is interconnected under the ground. The resulting loose sand will cause more dust blowing in the air and more particulate matter on windy days. This air pollution is preventable, and in allowed will directly affect people that have issues with breathing and asthma, and will trigger those who do not. The developers mentioned replanting but could not name any native plants that they would use, how they would establish and water these plants, or if they would be responsible for replacing dead plants that failed to thrive. In short, they have little concern about the land, the integrity of the air, or the quality of life of those who will be left with their destruction.

Besides the dust and destruction of important slow growing native species, there is an active ecosystem of many thriving animals in this area. There are rabbits, jackrabbits, quail, snakes, coyotes, desert tortoises, ground squirrels, and many others that call this land their home. The developers mentioned relocating the endangered desert tortoise, but research shows that is not successful long term for the tortoises. We can avoid the destruction of these animals' habitat by not clearcutting, grading, and developing the land.

The solar farm project will destroy the view that me and my many neighbors enjoy looking west. Instead of the incredible sunset or the snowcapped mountain of San Jacinto, the eye will be drawn to shiny manmade objects covering 184 acres of once gorgeous and thriving desert. The developers mentioned that they chose this parcel of land because it is not near any recreation area, which is preposterous. One of our most treasured national parks is only a few miles away, and myriad people walk or recreate nearby; why would we not protect this beautiful land?

Lastly, I have concerns about the long term impact of this project, as the developers did not mention or address what they will do with the land after the 30 year life of the proposed project. Will they be removing the panels and replacing them? Will they be attempting to mitigate the damage they have caused to this land? Is this even possible?

Twentynine Palms and San Bernadino County have spoken with their moratoriums on these large solar farms, with good reason. The land is not zoned for this type of project. The choice seems clear that we must deny this project and let the developer group find another community to blight for their profit.

Thank you for your time and consideration,

Jennifer Schmidt

510-847-1429

Jennifermariposa@hotmail.com

From: JohnW TJ <johnwtj@gmail.com>
Sent: Friday, March 29, 2024 3:47 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: E-Group solar project proposal

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Dear Mr. Gardner,

I attended the recent scoping meeting at Patriotic Hall and am writing to provide my comments on the proposal.

I am in favor of solar energy, but I am not in favor of the project as it currently stands for the following reasons, many of which you will already be familiar:

1) There is already one solar farm in the area (off of Lear Rd.) A second one within sight of Highway 62 would mar the natural aesthetics of the Sugar Bowl area;
2) The city should not be in the practice of turning over residential parcels to for-profit businesses, particularly when California is in the throes of a housing shortage, and at a time when our city has been directed to build 900+ residences by 2029. I note the proposal includes a housing offset, but the resulting higher density would further erode the natural appeal of the area;
3) There are documented examples of tortoise activity on the property, as well as other populations including quail, coyotes, possibly even burrowing owls. We should take care to properly steward our unique National Park-adjacent biodiversity;
4) Clearing the parcel and grading it for solar panels requires the removal of thousands of native creosote plants, which effectively sequester carbon. They are a defense against climate change;
5) A decade ago, the Lear Road solar farm construction resulted in loss of topsoil and its attendant air-quality issues. Another project like it, twice as large, triples the downwind effects, which would, among other negatives, impact the health of our residents;
6) Twentynine Palms currently has a moratorium on solar projects. The city should honor that moratorium.

Thank you for the invitation to provide my opinion,

John Talley-Jones
Twentynine Palms

From: babyjean@protonmail.com <babyjean@protonmail.com>
Sent: Friday, March 29, 2024 1:09 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Solar project near harmony hills

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I am a resident of 29 Palms. I live on Tamarisk Ave. I am concerned about solar farms destroying our desert habitat. I am also concerned about the people who live near this proposed farm and think it is very important to consider their opinions. I also think that a detailed environmental impact statement should be done. I am concerned that these companies are " muscling" their way into our community. The Mojave Desert is not a wasteland. I think rooftop solar is a better option. I support am for strong regulations to protect our communities environmental and aesthetic character and feel that companies, especially large chain corporations should be limited in our communities and those that are here should follow all codes, rules and regulations. Many seem to not care about what their structures look like, whether they are following our dark sky lighting ordinances, our sign ordinances ect. Business is not above the law. Companies should never trump quality of life issues of our residents. If they refuse to play ball I say we don't need them. I am against the idea of growth for the sake of growth; that idea is called " cancer" we don't want cancer here. Do we need that business? Is the question that should be asked everytime.
I am a member of several organizations: Scenic America, International Dark Sky and numerous environmental groups such as The Center for Biological and Morongo Basin Conservation Society. I hope I can work with the city to keep our town livable and beautiful!
Respectfully,
Mrs. Ronnie Tiner

Sent from Proton Mail mobile

From: Diane Wood <diane1wood@hotmail.com>
Sent: Friday, March 29, 2024 2:25 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: Objection to 29 Palms Solar Project

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Hi Keith,
Thank you for the opportunity to include our objection to the planned solar farm in our neighborhood.
Ron & Diane Wood

Objection to the 29 Palms Solar Project

We are strongly against the solar panel development planned for the area along Samarkand, west of Sunrise. We are concerned not only about the destruction of Desert Tortoise habitat, an endangered species, but also about the potential erosion of the land from wind and rain when you clear the area of all native vegetation and regrade the site. We have owned property closest to the planned development for more than 50 years and have seen Samarkand washed out due to regrading when the road was extended to the west of Sunrise.

The plan notes on page 7 that 501,100 cubic yards of fill will be brought in to replace 501,500 cubic yards of the natural rocks and soil that is being removed, resulting in an increased potential for erosion due to the disturbance of existing, compacted and crusted desert surface. Also of note is the plan of power washing the panels in an area where dust is prevalent resulting in additional erosion.

Please reconsider the size and scope of this enormous project and its deleterious effects on the wildlife and landscape of the irreplaceable Mojave Desert.

Ron & Diane Wood, owners of 71336 Samarkand

From: Heather Vescent <heathervescent@gmail.com>
Sent: Sunday, March 31, 2024 2:11 PM
To: Keith Gardner <kgardner@29palms.org>
Subject: 29 Palms Solar Project Comments

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Dear Keith,

Please see attached my comments on the proposed 241-acre solar project. I apologize for my delayed letter, I have been recovering from my second knee surgery.

Thank you,

-Heather

--
Heather Vescent
President, The Purple Tornado, Inc
Author: The Secret of Spies | The Cyber Attack Survival Manual | A Comprehensive Guide to Self Sovereign Identity
Previously: Biometric Update, O'Reilly, Medium, W3C CCG Co-chair, IDPro President, Innotribe @SWIFT, Founder LA Geek Dinner, Barcamp LA

@heathervescent | Film Futures | LinkedIn | Future of Security Updates

Dear 29 Palms,

I am writing to oppose the proposed 241-acre solar project north of 2 mile road.

My concern with this solar project is that it will erode peace and quiet; diminish the nature of residentially zoned neighborhoods (by forcing us to live in an industrial appearing neighborhood); degrade the wide open vistas that define the desert life; while increasing our nation's energy attack surface with centralized solar.

Peace and Quiet
The peace and quiet of desert residential neighborhoods is under attack by prospective hotels, for profit AirBnBs and now industrial grade solar projects. In all these cases, outsiders come to our community, ask to change the zoning for their benefit, with minimal concern to locals, the environment, the peace and quiet and impacting the broad views which is a main draw for those of us who live here.

Environmental Issues
Non-locals and non-desert folks see our landscape as barren (except during the super bloom) and mistakenly think nothing lives here, thus there is no impact to disturb it. As others have mentioned, our desert is a unique environment for many plants, animals and tiny soil based microorganisms. One example I haven't heard mentioned is birds migration - not just the smaller flocks but we've all seen the wide gyres of migrating turkey buzzards flying right over the proposed solar project (at least I have on multiple occasions). It's well documented that birds are impacted by large solar arrays, often resulting in death. Any environmental report must take into consideration the impact of bird migration and a multi-year observation should be undertaken to understand the impact a solar array in this location might have on the long observed Turkey Buzzard migration.

Attack Surfaces
I'm a security researcher. Centralized energy farms are an attack target for state funded actors. The US Government invested in early Tesla prototypes as a mitigation strategy for a potential attack on our energy sources. We've seen these attacks in other countries and I have been part of war-games where this has been a real discussion. Does it make sense to create another centralized attack surface for our energy needs? Do we want to open up our city to this kind of target without direct military mitigation support?

No-Win
Since the developers have threatened us with AB205 (https://leginfo.legislature.ca.gov/faces/billPdf.xhtml?bill_id=202120220AB205&version=20210AB20595CHP), telling us if we don't work with them, they will go around us. I asked myself what kind of situation would I support a solar project?

Only a situation where the upsides outweigh the downsides. There must be a significant benefit to the environment, the city and city residents - in my opinion, these constituents should benefit more than the developer and company since they are disturbing what is already here.

1. For the environment, I ask the company to donate an equal amount and kind of land for the creation of a preserve that will never be developed, even through a loophole.
2. For the city and residents, I ask for a profit sharing arrangement to compensate for what is being taken from us for their profit. How can one quantify the value of our pristine desert views? What are they worth? I think many of us would say it is priceless. But we could start by making a comparison for the price of a comparable vista in Los Angeles, or New York or London, and ensure this monetary value is returned to the residents and the city from the company.
3. Finally, profits should be shared with the city and city residents, not just in the form of jobs, but in the form of private for profit-civic profit sharing.

This project promises jobs. The city should require a commitment of an annual number of jobs with an annual amount of compensation for 29 Palms residents. If the city does not have the required skillset, the company should pay to develop locals to the desired skill set.

We, the residents and representatives of 29 Palms, need to work with San Bernardino, Sacramento, the California Energy Commission, and solar companies to ensure the environment, peace and quiet of residential neighborhoods are not sacrificed for profits. No one living in 29 Palms, past, present or future, should be forced to live in an industrial neighborhood, nor should we support one environmental solution (centralized solar) at the loss of another (flora and fauna). Nor should we support the development of infrastructure that may increase our national attack surface.

For these reasons, I hope the developers reconsider their proposal.

Thank you,

-Heather Vescent
heathervescent@gmail.com

From: Garn, John C <john_garn@fws.gov>
Sent: Friday, March 29, 2024 2:53 PM
To: Keith Gardner <kgardner@29palms.org>
Cc: Woulfe, MaryBeth <marybeth_woulfe@fws.gov>; Bisson, Jeremy R <jeremy_bisson@fws.gov>
Subject: Comments on the Notice of Preparation of an Environmental Impact Report for the E-Group PS Solar Project, Twentynine Palms, California

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Good afternoon,

I hope this finds you healthy.

Please see attached.

Please note - some Firewall or email security settings will strip the digital signature from the letter. Please review the attachment and if the digital signature is not intact, contact me for an alternate method of transmittal through the secure FWS fileshare program.

A hard copy letter will not follow.

Sincerely,
John

John Garn
Administrative Assistant
U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
Palm Springs Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008
760.431.9440

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Palm Springs Fish and Wildlife Office
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, California 92262

In Reply Refer to:
2024-0069958-HCP-001-SB

March 29, 2024
Sent Electronically

Keith Gardner
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, California 92277

Subject: Comments on the Notice of Preparation of an Environmental Impact Report for the E-Group PS Solar Project, Twentynine Palms, California

Dear Keith Gardner:

The U.S. Fish and Wildlife Service (Service) has reviewed the above referenced Notice of Preparation (NOP) of an Environmental Impact Report (EIR) dated February 20, 2024, for the proposed E-Group PS Solar Project (Project). The Project details provided herein are based on the information provided in the NOP and our knowledge of wildlife in the region.

The primary concern and mandate of the Service is the protection of fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. As such, the Service is responsible for administering the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), Bald and Golden Eagle Protection Act (Eagle Act; 16 U.S.C. 668-668c), and Federal Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.), including habitat conservation plans (HCP) developed under section 10(a)(1)(B) of the Act.

The 477-acre Project site is located north of State Route 62 within the City of Twentynine Palms (City) in eastern San Bernardino County. The site is bordered by Two Mile Road on the south and unimproved future City streets, including Amboy Road on the north, Canyon Road on the west, and Noels Knoll Road on the east. Lands adjacent to the Project site are generally vacant and low density residential, and designated Rural Living, 5-acre minimum lot size, and Single-Family Residential–Estate, 2.5-acre minimum lot size, consistent with the Project site. These land use designations allow single family homes on large lots. Lands on the east side of Noels Knoll Road and south of Two Mile Road include scattered large lot single family homes and a church. The proposed Project includes the construction of a solar array on the northern 184 acres of the 477-acre Project site.

Based on our review of the Project site and description in the NOP, the Service is concerned about potential effects to the desert tortoise [Mojave population Distinct Population Segment (*Gopherus agassizii*); desert tortoise] and its habitat. We request that the EIR address how the

Project, with 184 acres of solar development on the 477-acre site would adequately avoid, minimize, and mitigate impacts to listed and sensitive species. Please include a comprehensive analysis of the potential effects to desert tortoise in the EIR. If you determine that there is a potential for adverse effects to desert tortoise, we recommend you contact the Service early to coordinate and determine if incidental take authorization under section 10 of the Act may be warranted.

Thank you for the opportunity to comment on the NOP. If you have any questions or comments regarding this letter, please contact Jeremy Bisson[1] at 760-322-2070, extension 403.

Sincerely,

for Brian Croft
Acting Assistant Field Supervisor

[1] jeremy_bisson@fws.gov.

TWENTY-NINE PALMS BAND OF MISSION INDIANS

46-200 Harrison Place. Coachella, CA. 92236. Ph. 760.863.2444. Fax: 760.863.2449

3/7/2024

Keith Gardner
Community Development Director
6136 Adobe Road
City of 29 Palms, CA, 92277

RE: 6136 Adobe Road
City of 29 Palms, CA, 92277

Dear Mr. Gardner,

This letter is in regards to the solar array project and development of 160,000 panels, consisting of 184 acres with 720 ground-mounted solar panel racks each 104 ft wide and 252 feet long in 29 Palms, CA. Throughout the project, please ensure that the Incidental Take Permits (ITPs) are in place as the Tribe requests that they be informed of any desert tortoise incidentals. The tortoise is a sacred and culturally significant animal to the 29 Palms Band of Mission Indians Tribe and all efforts to mitigate impact upon them should be taken. Moreover, while the Tribal Historic Preservation Office (THPO) is not aware of any tribal cultural resources that pertains to Twenty-Nine Palms Band of Mission Indians traditional use area (TUA) on the surface level in the project study area, there is the possibility of cultural resources below ground being discovered during construction. Therefore, as this is a decently-sized development within the Tribe's TUA, the THPO requests any future cultural resource/inventory assessment reports and results. Other tribes who also have cultural affiliation with the project area should be contacted. If you have any questions, please do not hesitate to contact the Tribal Historic Preservation Office at (760) 863-3972 or by email at Christopher.Nicosia@29Palmsbomi-nsn.gov

Sincerely,

Christopher Nicosia
Cultural Resources Manager, Twenty-Nine Palms Band of Mission Indians

CC: Darrell Mike, Tribal Chairman
George Nicolas, Chief Administrative Officer
Anthony Madrigal, Senior Vice President of Operations
Anthony Kosturos, Chief Financial Officer
George Nicholas, Tribal Chief Administrative Officer

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-053-2023-002

March 12, 2024

[VIA EMAIL TO:kgardner@29palms.org]
City of Twentynine Palms
Keith Gardner
6136 Adobe Road
Twentynine Palms, CA 92277

Re: E-Group PS Solar IS

Dear Keith Gardner,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Twentynine Palms Solar project. We have reviewed the documents and have the following comments:

*A cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*The presence of an approved Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer.

*The presence of an archaeologist that meets the Secretary of Interior's standards during any ground disturbing activities.

*Please provide the EIR upon completion.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760) 423-3485. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-053-2023-002

Xitlaly Madrigal
Cultural Resources Analyst
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION OFFICE

VIA ELECTRONIC MAIL

kgardner@29palms.org

Keith Gardner
Community Development Director
City Of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277

MORONGO BAND OF MISSION INDIANS
A SOVEREIGN NATION

March 18, 2024

RE: Notice of Preparation for the City of Twentynine Palms E Group PS Solar Project

The Morongo Band of Mission Indians (Tribe/MBMI) Tribal Historic Preservation Office received the City of Apple Valley letter regarding the above referenced project on March 6, 2024. The proposed E Group PS Solar Project (Project) is located within the ancestral territory and traditional use area of the Cahuilla and Serrano people of the Morongo Band of Mission Indians.

Tribal cultural resources are non-renewable resources and therefore of high importance to the Morongo Tribe, therefore, tribal participation (a.k.a. tribal monitors) is recommended during all ground disturbing activities. We look forward to working with the Agency to protect these irreplaceable resources out of respect for ancestors of the Morongo people who left them there, and for the people of today and for generations to come.

Projects within this area are potentially sensitive for cultural resources regardless of the presence or absence of remaining surface artifacts and features. Our office requests to initiate government-to-government consultation under Assembly Bill (AB) 52 (California Public Resources Code § 21080.3.1) and Senate Bill (SB) 18 (Government Code 65362.3) and requests the following from the City to ensure meaningful consultation:

- Currently proposed Project design and Mass Grading Maps
- A records search conducted at the appropriate California Historical Resources Information System (CHRIS) center with at least a 1.0-mile search radius from the project boundary. If this work has already been done, please furnish copies of the cultural resource documentation (ArcMap Shapefiles, reports and site records) generated through this search so that we can compare and review with our records to begin productive consultation.
- Tribal participation (a.k.a. tribal monitors) during the pedestrian survey and testing, if this fieldwork has not already taken place. In the event that archaeological crews have completed this work, our office requests a copy of the current Phase I study or other cultural assessments (including the cultural resources inventory).
- Shapefiles of the Projects area of effect (APE)
- Geotechnical Report

This letter does not conclude consultation. Upon receipt of the requested documents the MBMI THPO may further provide recommendations and/or mitigation measures.

The lead contact for this Project is Bernadette Ann Brierty, Tribal Historic Preservation Officer (THPO).

MBMI Cultural Resource Specialist Laura Chatterton, will be assisting the Tribe in the review of this project. Please do not hesitate to contact us at ABrierty@morongo-nsn.gov, THPO@morongo-nsn.gov, lchatterton@morongo-nsn.gov or (951) 663-2842, should you have any questions. The Tribe looks forward to meaningful government-to-government consultation with the City.

Respectfully,



Bernadette Ann Brierty
Tribal Historic Preservation Officer
Morongo Band of Mission Indians

CC: Morongo THPO

12700 Pumarra Road – Banning, CA 92220 – (951) 755-5259 – Fax (951) 572-6004 – THPO@morongo-nsn.gov

Public Scoping Meeting Written Comments
March 21, 2024

EIR SCOPING MEETING E-GROUP PS SOLAR PROJECT

March 21, 2024

THE CEQA PROCESS

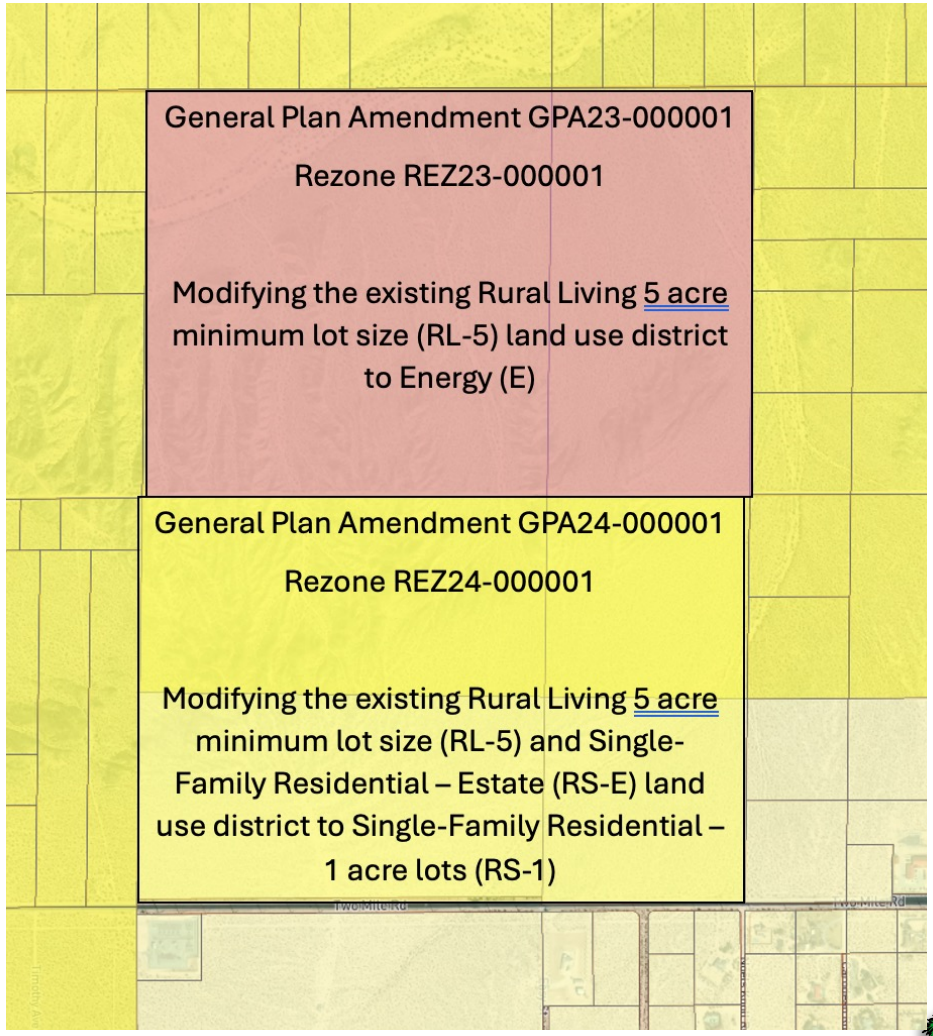
- The City is the Lead Agency under CEQA for this project.
- The City has determined that the project could have significant impacts on the environment, and that an Environmental Impact Report (EIR) must be prepared.
- An Initial Study has been prepared and distributed for public comment. The comment period ends March 29, 2024.

THE PROJECT

The City has received applications for:

- General Plan Amendment GPA24-000001: A General Plan Amendment (map) to redesignate the southern 236-acres from Rural Living (RL-5) and Single-Family Residential (RS-E) to Single-Family Residential (RS-1).

- Rezone REZ24-000001: A Rezone to modify the land use designation on the southern 236-acres of the subject site from Rural Living (RL-5) and Single-Family Residential – Estates (RS-E) to Single-Family Residential (RS-1).



THE PROJECT

- General Plan Amendment GPA23-000001: A General Plan Amendment (text and map) to create a new Renewable Energy (E) land use district, and to modify the land use designation on the northern 241-acres of the subject site from Rural Living (RL-5) to E. Associated text, graphics, and statistics within the General Plan will be updated accordingly.

- Development Code Amendment DCA23-000016: A Development Code Amendment proposes to create a new Renewable Energy (E) district. A new section of the Development Code will be created to establish the allowable uses and development standards in the E land use district.

- Rezone REZ23-000001: A Rezone to modify the land use designation on the northern 241-acres of the subject site from Rural Living (RL-5) to E.

- Conditional Use Permit CUP23-000009: A Conditional Use Permit to allow the Project to be constructed on the site.

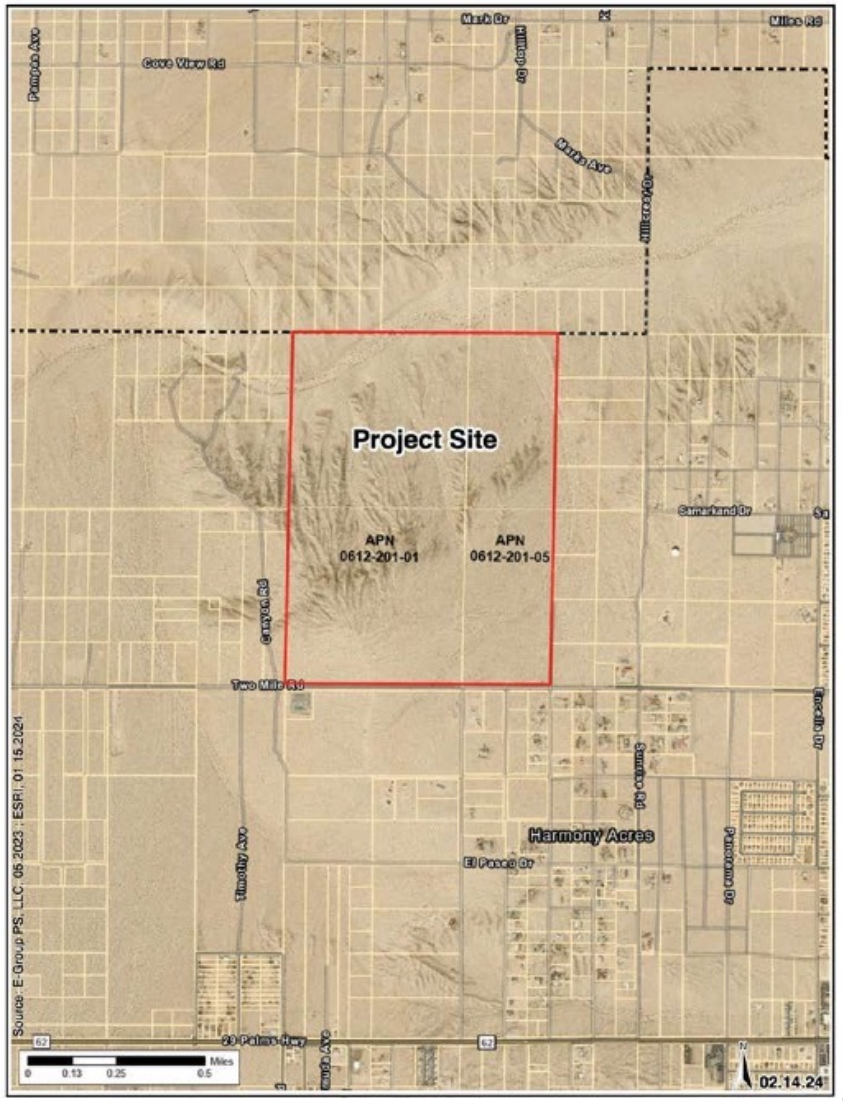
- Development Agreement: A Development Agreement is proposed for the Project. Details will be negotiated between the City and applicant.

PROJECT AREA

Project Site: 477± acres

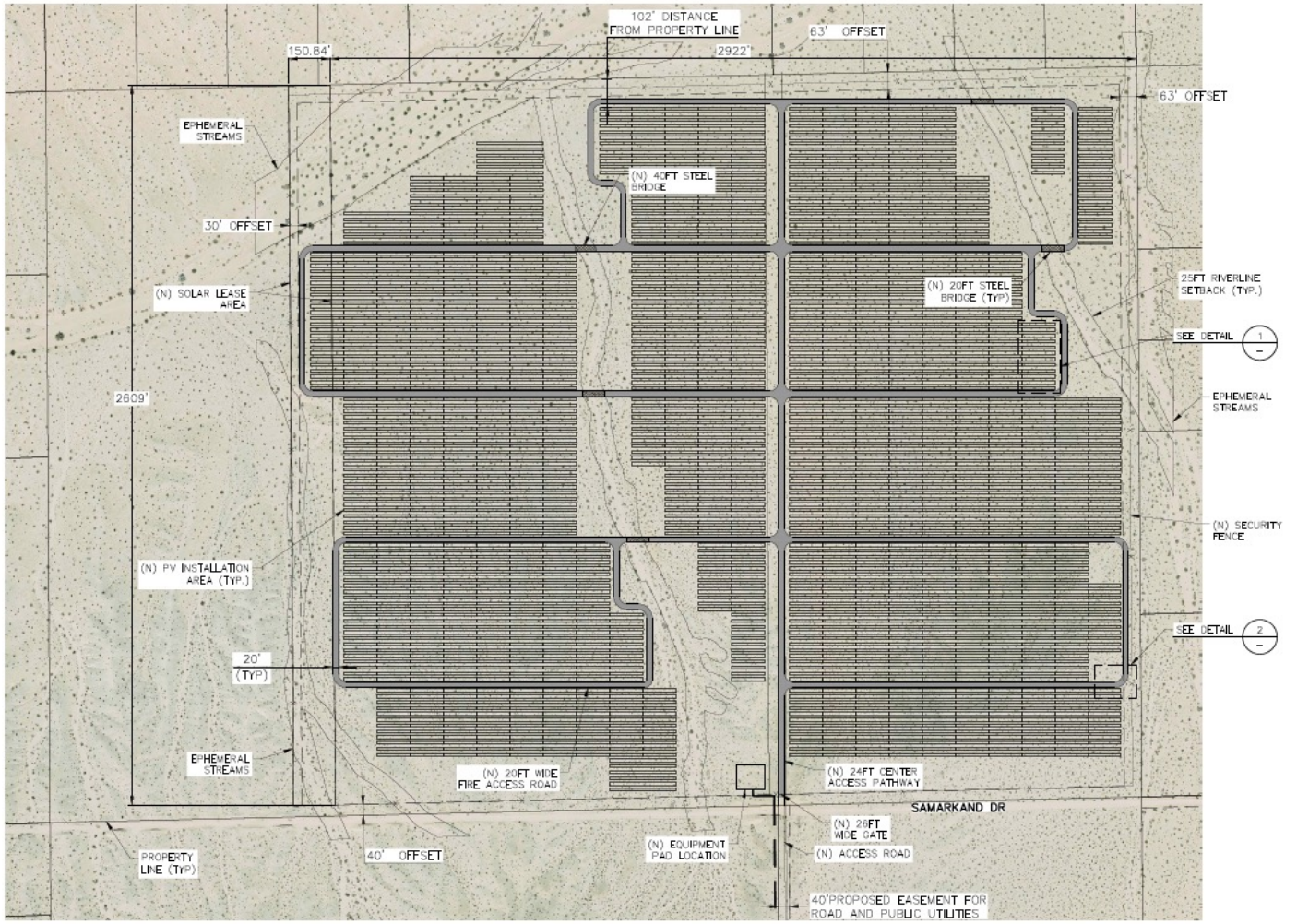
Solar Project: Northern 241± acres

Residential Designation Change: Southern 236± acres



SITE PLAN

- 160,000 solar panels on 720 ground-mounted solar panel racks.
- 6-10 feet off the ground, at a fixed angle facing south
- Transformer at south boundary
- Underground wiring to Two Mile Road, then east to the existing substation.



INITIAL STUDY FINDINGS

No Impacts:

- Agriculture & Forest Resources
- Mineral Resources
- Wildfire

INITIAL STUDY FINDINGS

Less Than Significant Impacts or Mitigation Required:

- Energy
- Hazards & Hazardous Materials
- Hydrology
- Noise
- Population & Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities & Service Systems

INITIAL STUDY FINDINGS

Potentially Significant Impacts:

- Aesthetics (visual character & glare)
- Air Quality & Greenhouse Gases (increased residential density)
- Biological Resources
- Cultural & Tribal Cultural Resources
- Geology & Soils (erosion)
- Land Use (conflict with the General Plan)

NEXT STEPS

- Initial Study/NOP comments due by March 29, 2024
- EIR will be prepared.
- EIR 45 day public comment period late Spring or early Summer.
- Planning Commission and City Council hearings late Summer or early Fall.

COMMENTS?

Twentynine Palms
Solar Project
Public Scoping Meeting
March 21, 2024

NAME	ADDRESS	EMAIL
Robert Intyre	7975 EAST ST	nitnyre@yahoo.com
JEFFREY JOHNSON	5488 Daisy Ave	JQJPLUMBING@GMAIL.COM
Eva Stanford	5710 Noels Knoll Rd	stanford.08@yahoo.com
LONNIE CASPER	1238 CACHUILLA RD	LCASPERJR@YAHOO.COM

Twentynine Palms
Solar Project
Public Scoping Meeting
March 21, 2024

NAME	ADDRESS	EMAIL
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Kurt Keppeler	71428 Samarkand	kurtkeppeler@gmail.com
BETH SHEFFIELD	Po Box 935 (92277)	bdthinwondervalley@gmail
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JOHN "	"	
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Pat Flanagan	71575 Mesa Dr	patflanagan29@gmail.com
Cinny Kennard	P.O. BOX 1313	

Twentynine Palms
Solar Project
Public Scoping Meeting
March 21, 2024

NAME	ADDRESS	EMAIL
Peter Lang	71950 Samarkand	Peter.Lang@ABBYY.COM
Kim ORTHMOND	74992 Cottonwood	
Chris Carreho	PO Box 935, 29 Palms	wonder11@earthlink.net
Russe Gina Kohn	71212 El Paseo Dr.	Ginasuz@gmail.com

Comment Card
Twentynine Palms Solar Project
Public Scoping Meeting 3/21/2024

Name Eva Stanford Email and Phone Number stanford.08@yahoo.com

This is nothing more than profit for the land owner and e-group.

Put the project in a less populated, and used location.

Comment Card
Twentynine Palms Solar Project
Public Scoping Meeting 3/21/2024

Name Richard B Gray Email and Phone Number desertgray92277@gmail.com

Do you think it is wise to call us your esteemed citizens and then threaten us if we don't approved this plan.