

IV.1 INTRODUCTION TO IMPACT ASSESSMENT

This volume analyzes the expected environmental consequences or impacts from implementing each alternative described in Volume II, Description of Alternatives. Its impact analysis scope corresponds to the level of detail in the Volume II alternatives, and to both the availability and quality of the data necessary to assess impacts.

This volume is necessarily lengthy and complex for a number of reasons. There are many natural communities and Covered Species in the Desert Renewable Energy Conservation Plan (DRECP or Plan) Plan Area. The Covered Activities are similarly broad, and the time horizon of the Plan is long. Finally, the desert environment is complex and highly variable, qualities made even more complicated by the confounding potential effects of climate change on ecosystems, species, and other resource values in the Plan Area.

This volume analyzes key technical results and methods. Conclusions and summaries rely on literature citations (presented principally in Volume III), technical data (presented in each Volume IV chapters and in appendices), and expert opinion. A number of appendices provide full technical descriptions of methods and results, which are also cited in this volume. Readers may refer to the appendices for more information about the methods used or other technical details underlying the conclusions and summaries in this volume.

This introductory chapter presents the following:

- The legal framework for this impact assessment.
- A summary of Plan components that must be analyzed pursuant to the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).
- A summary of the Plan-wide Alternatives (No Action, Preferred Alternative, and Alternatives 1 through 4), analyzed in each resource chapter.
- A summary of the Bureau of Land Management (BLM) Land Use Plan Amendment (LUPA), Natural Community Conservation Plan (NCCP), and General Conservation Plan (GCP) alternatives analyzed in each resource chapter.
- Approach to impact assessment.
- Specific additional CEQA and NEPA requirements.
- The organization of each analysis section.

IV.1.1 Legal Framework for Impact Assessment

The purpose of a Programmatic Environmental Impact Report (EIR) under CEQA is to allow a lead agency to “consider broad policy alternatives and program wide mitigation mea-

asures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts” (14 CCR 15168[b][4]). Similarly, a Programmatic Environmental Impact Statement (EIS) is prepared under NEPA to consider “broad federal actions such as the adoption of new agency programs or regulations... timed to coincide with meaningful points in agency planning and decision making” (40 Code of Federal Regulations [CFR]1502.4[b]). This programmatic document discusses at a broad level the general environmental consequences of this complex, long-term program and describes regional impacts within the Plan Area.

This document describes, in general, potential environmental, economic, and social effects of the Plan. The discussion of cumulative and growth-inducing impacts is also general and corresponds to the level of analysis of a Programmatic EIR/EIS. Proposed mitigation strategies that can be applied in future tiered projects address significant adverse environmental consequences. However, the precise impacts of individual projects cannot readily be identified at this early planning stage; supplemental CEQA and NEPA documents will be prepared to address project-specific analyses when additional information on specific proposed projects is available. This document has been prepared to comply with both CEQA and NEPA. Both laws require the analysis of environmental impacts of the Plan. This analysis can be approached the same way for both laws, but each law requires that certain issues be specifically addressed. Both CEQA and NEPA are designed to identify significant environmental impacts; however, they have slightly different definitions and approaches to determining significance. The following presents key requirements and concepts for each law.¹

IV.1.1.1 California Environmental Quality Act

The methodology for the impact assessment in this document conforms to the requirements of CEQA (California Public Resources Code [PRC] Section 21000 et seq.), including the Guidelines for Implementation of CEQA (14 California Code of Regulations [CCR] Section 15000 et seq.). Under CEQA, impacts are evaluated using significance thresholds or standards, generally from CEQA’s Appendix G checklist. For each resource defined in the checklist, a determination is made that there is (1) no impact, (2) a less than significant impact, (3) a less than significant impact with mitigation incorporated, or (4) a potentially significant impact. If an impact would exceed a threshold, it is deemed a potentially significant impact.

Significant impacts under CEQA require the public agency that is approving, funding, or carrying out the project to consider mitigation, where feasible, to avoid or reduce the

¹ Much of the CEQA and NEPA discussion is taken from a draft document developed jointly by the federal Council on Environmental Quality and the California Office of Planning and Research: “NEPA and CEQA: Integrating State and Federal Environmental Reviews, March 2013.”

impacts to less than significant levels. For purposes of the analysis in this volume, the terms *significance* or *significant* are used only to describe impacts under CEQA. CEQA Guidelines Sections 15126.2(a-c), 15358, and 15382 further define and describe significant effects.

CEQA also requires an evaluation of a reasonable range of alternatives to the project or to the location of the project. Alternatives are required to “feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects” of the project, “even if these alternatives would impede to some degree the attainment of the projects’ objectives, or would be more costly” (Section 15126.6[a]–[c]). An EIR: (1) must evaluate the comparative merits of the alternatives; (2) shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project; and (3) must disclose the reasons for selecting particular alternatives (Section 15126.6[a]–[c]). If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (14 CCR 15126.6[d]). For this project, the Preferred Alternative is the proposed project. Volume II describes the Preferred Alternative, No Action Alternative, and four additional alternatives; Section IV.1.2 in this chapter summarizes the key components of each alternative.

Impact Analysis Under CEQA

The environmental impacts section of an EIR must also consider direct, indirect, and cumulative impacts of the project (PRC 21065.3). As mentioned earlier, the CEQA Guidelines (Appendix G) provide an environmental checklist to help determine whether an EIR needs to be prepared; but lead agencies also use Appendix G checklist items as standards to help determine the significance of impacts analyzed in an EIR. CEQA Guidelines specifically require consideration of the following:

- Greenhouse gas impacts (14 CCR 15064.4).
- Energy impacts (14 CCR, Appendix F).
- Impacts associated with placing projects in hazardous locations (14 CCR 15126.2[a]).
- Growth-inducing impacts (14 CCR 15126.2[d]).
- Irreversible significant environmental impacts for some types of projects, including those requiring an EIS under NEPA (PRC 21100[b][2]; 14 CCR 15127[c]).

Individual agencies may also specify particular types of analysis that must be performed.

Impact Significance Determination Under CEQA

EIRs should focus on significant impacts (14 CCR Section 15126.2[a]). Impacts that are less than significant need only be briefly described (14 CCR Section 15128). CEQA defines a significant impact as “a substantial, or potentially substantial, adverse change within the area affected by the project” (14 CCR Section 15382). The Guidelines encourage agencies to adopt thresholds for what constitutes a significant impact (14 CCR Section 15064.7[a]). A “threshold of significance” is “an identifiable quantitative, qualitative, or performance level of a particular environmental effect, *noncompliance with* which means the effect will normally be determined to be significant by the agency and *compliance with* which means the effect normally will be determined to be less than significant” (14 CCR Section 15064.7).

If the lead agency finds that a project may have significant effects on the environment, the lead agency must:

1. Prepare an EIR incorporating adequate detail.
2. Make detailed findings on the feasibility of alternatives or mitigation measures to substantially lessen or avoid the significant effects on the environment.
3. When feasible, make changes in the project to substantially lessen or avoid the significant effects on the environment.

This may involve a requirement that the lead agency adopt a statement of overriding considerations (14 CCR Section 15065).

Even in the absence of adopted thresholds, CEQA requires an agency to evaluate the factual and scientific data to determine whether an impact may be significant. The determination of significance may depend to some degree on the project’s context (14 CCR Section 15064[b]). CEQA documents must also explicitly identify each impact the agency has determined to be significant (14 CCR Section 15126.2[a]). These significance determinations must be “based on substantial evidence in the record of the lead agency” (14 CCR Section 15064[f]).

In this CEQA/NEPA document, impact significance determinations are presented under only a CEQA heading because NEPA does not require such determinations. Impact descriptions in this EIR/EIS comply with both NEPA and CEQA requirements; but, after each impact description, a section entitled “CEQA Significance Determination” must identify and explain the significance determination.

CEQA defines a cumulative effect as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental

impacts” (14 CCR Section 15355). For further analysis of cumulative impacts, see Chapter IV.25.

Mitigation Measures Under CEQA

CEQA requires a lead or responsible agency to adopt feasible mitigation measures within its jurisdiction that would reduce a project’s significant effects. An EIR must describe feasible measures that could minimize significant adverse impacts, including, where relevant, the inefficient and unnecessary consumption of energy. CEQA Guidelines (Section 15370) define mitigation as avoiding, minimizing, rectifying, reducing, eliminating, or compensating for the identified impact. Mitigation measures must meet the following criteria, among others (CCR Section 15126.4):

1. Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.
2. Mitigation measures are not required for effects [that] are not determined to be significant.
3. Mitigation measures must be consistent with all applicable constitutional requirements, including the following:
 - a. There must be an essential nexus (i.e., connection) between the mitigation measure and a legitimate government interest.
 - b. The mitigation measure must be “roughly proportional” to the impacts of the project.
4. If the lead agency determines that a mitigation measure cannot be legally imposed, the measure need not be proposed or analyzed. Instead, the EIR may simply reference that fact and briefly explain the reasons underlying the lead agency’s determination.

Section 15126.4 also requires that mitigation measures distinguish between the measures proposed by project proponents and other measures that could reasonably be expected to reduce adverse impacts if required as conditions of approving the project. An EIR is required to identify mitigation measures for each significant environmental effect identified. Finally, CEQA requires that where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. In addition, if a mitigation measure would cause a significant effect in addition to those that would be caused by the project, the effects of the mitigation measure shall be addressed in the EIR.

IV.1.1.2 National Environmental Policy Act

The methodology for this assessment also conforms to the guidance found in the Council on Environmental Quality (CEQ) regulations for implementing NEPA—methodology and scientific accuracy (40 CFR 1502.24), cumulative impact (40 CFR 1508.7), and effects (40 CFR 1508.8). In addition, guidance from the BLM NEPA Handbook (H-1790-1) and the U.S. Fish and Wildlife Service (USFWS) Manual (Part 550, Chapter 2.4) was followed.

Impact Description for NEPA

The CEQ NEPA regulations use the terms “effects” and “impacts” synonymously. The environmental consequences section of an EIS must discuss direct and indirect impacts of the proposed project (40 CFR 1502.16[a]-[b]). The regulations define “effects” as “direct effects, which are caused by the action and occur at the same time and place” (40 CFR 1508.8[a]).

Indirect effects consider effects “later in time or farther removed in distance, but are still reasonably foreseeable” (40 CFR 1508.8[b]). “Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR 1508.8).

Finally, cumulative impacts must be considered. A “cumulative impact” is the environmental impact resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions that can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). Cumulative effects are also considered in this EIR/EIS, Land Use Plan Amendment (LUPA), General Conservation Plan (GCP), and Natural Community Conservation Plan (NCCP).

Impacts should be addressed in proportion to their significance (40 CFR 1502.2[b]), meaning that severe impacts should be described in more detail than less consequential impacts. The intention is to help decision makers and the public focus on the project’s key effects. The NEPA regulations explicitly require discussion of certain impacts, including:

- Irreversible or irretrievable commitment of resources (40 CFR 1502.16).
- Tradeoffs between short-term uses of the environment and long-term productivity (40 CFR 1502.16).
- Energy requirements and conservation potential of alternatives (40 CFR 1502.16[e]).

Effects include “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health [-related impacts], whether direct, indirect, or cumulative.” Effects may also be both beneficial and detrimental (40 CFR 1508.8).

Mitigation Measures Under NEPA

Section 1508.20 of the CEQ regulations for implementing NEPA defines mitigation as follows:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

IV.1.1.3 CEQA/NEPA Document

Both CEQA and NEPA goals strive to facilitate informed governmental decisions regarding projects and operations that may affect the environment. The implementing regulations for both laws are designed to allow flexibility in consolidating and avoiding duplication among multiple governmental layers of review. While some specifics in each law define varying requirements, the two laws are similar, both in their overall intent and in the review processes they dictate. Both statutes encourage a joint federal and state review where a project requires both federal and state approvals.

Specifically, according to CEQA Guidelines Section 15226, “State and local agencies should cooperate with federal agencies to the fullest extent possible to reduce duplication between the California Environmental Quality Act and the National Environmental Policy Act.”

NEPA (1506.2) states that agencies shall cooperate with state and local agencies to the fullest extent possible to reduce duplication between NEPA and comparable state and local requirements, unless the agencies are specifically barred from doing so by some other law. Except for major federal actions funded under a program of grants to states, such cooperation shall to the fullest extent possible include joint environmental impact statements.” (See also 42 United States Code [U.S.C.] 4332[2][D].)

This Programmatic EIR/EIS reflects the cooperation of multiple state and federal agencies.

IV.1.2 Summary of Alternatives Analyzed

The alternatives analyzed in this EIR/EIS include the following:

- Plan-wide alternatives that encompass conservation and renewable energy development within the entire Plan Area.
- BLM LUPA alternatives that pertain only to BLM land (see Section IV.1.2.3).
- NCCP alternatives that include Plan-wide development and conservation actions modified by management actions providing additional durability on a subset of Plan-wide conservation land (see Section IV.1.2.4).
- GCP take alternatives that address development and conservation on nonfederal land only (see Section IV.1.2.5).

Each resource chapter in Volume IV presents the impacts of Plan-wide alternatives. Following the discussion of Plan-wide impacts, the impacts and/or benefits of BLM LUPA, NCCP and GCP alternatives are discussed. The impacts or benefits of the BLM LUPA, NCCP and GCP alternatives generally derive from Plan-wide impacts. Where needed for clarity, the text refers back to the Plan-wide discussion; in other instances, a separate discussion is provided.

IV.1.2.1 Overview of Alternatives Development Process

This section describes the development process for the alternatives evaluated. As described in Volume II, the range of alternatives is based on extensive deliberation and analysis. The Plan-wide alternatives first consider Development Focus Areas (DFA) that could accommodate, within low biological resource conflict areas, approximately 20,000 MW of renewable energy generation. These areas did not always match up with areas of either high-value renewable energy resources or to areas in close proximity to existing transmission facilities; alternative DFA configurations considered these combined planning goals. Each alternative considers different development technologies and locations in order to analyze a range of potential impacts from renewable generation.

Each action alternative's DFA configuration reflects a somewhat different approach to minimizing biological resource conflicts and maximizing opportunities to site renewable energy projects in areas of high-value renewable energy resources. Section IV.1.2.2 describes each alternative and its balance between development and conservation.

Reserve design and conservation strategies were developed for each action alternative. Each alternative's reserve design reflects a different approach for achieving the Plan's Bio-

logical Goals and Objectives (BGOs), based on an alternative's DFA configuration and its avoidance and compensation strategies. Each alternative's DFA configuration was also, to a large extent, designed around areas of low biological conflict; so the DFA configurations themselves are part of the alternative-specific reserve designs.

In addition to alternative DFA and reserve design configurations, each action alternative's land use allocations consider the full range of land uses on BLM lands. LUPA alternatives incorporate DFA configurations and were designed to accommodate Plan-specific Reserve Designs and achieve Plan BGOs. However, the LUPA action alternatives also reflect a range of potential modifications to existing land use plans, and to rules with different approaches to the management of all resources on BLM lands: recreational, cultural, scenic, and mineral resources. LUPA alternatives must also consider the regional, statewide, and national importance of resource values on BLM lands (not just Plan-wide), as well as analysis in the Solar PEIS for appropriate solar development.

The DFA, reserve design and LUPA proposal efforts were integrated to create a range of alternatives analyzed in the Plan. In general, the Preferred Alternative represents the alternative considered (by the Renewable Energy Action Team [REAT] agencies) best for meeting DRECP goals.

IV.1.2.1.1 Components of All Plan-wide Alternatives

The basic components of the Plan-wide alternatives are renewable energy development, conservation, and the BLM LUPA. Table IV.1-1 summarizes acreages and descriptions for the key elements of each Plan-wide alternative. The basic components are:

1. **Renewable Energy Development** – This portion of the table reports total DFA acreage. Alternatives were assigned different mixes of renewable technologies to assess how the proportions of solar, wind, and geothermal development would likely affect environmental impacts. But the actual mix of renewable technologies to be ultimately developed in the Plan Area will not be driven by Plan alternatives; it will rather be driven by the projects proposed by developers and electricity retailers. Development could still occur outside of DFAs, but would not be eligible for Plan take authorizations.
2. **Conservation** – This portion of the table reports estimated conservation acreages for each alternative by category of proposed conservation lands: Legislatively and Legally Protected Areas (LLPAs), BLM LUPA Conservation Designation lands, NCCP Reserve Design Lands, and Conservation Planning Areas (CPAs).
3. **BLM LUPA** (see Section IV.1.2.3) – Acreage summaries for LUPA alternatives are embedded in the Renewable Energy Development and Conservation portions of the

table and are organized by alternative, by total acres of DFAs on federal lands, and by total acres of BLM Conservation Designations (by Conservation Designation type). Conservation types include National Landscape Conservation System (NLCS) lands, National Scenic and Historic Trails, Areas of Critical Environmental Concern (ACEC), and wildlife allocation lands. Additional designations are made for Special Recreation Management Areas (SRMAs) and land use allocations to replace multiple use classes (MUC) and establish Visual Resource Management (VRM) classes. The BLM LUPA elements outside the Plan Area but within the California Desert Conservation Area (CDCA) consist of land use allocations that replace the MUCs, establish VRM classes, and modify existing NLCS designations.

Table IV.1-1 summarizes information about each of the Plan-wide alternatives; the alternatives are described in more detail in Section IV.1.2.2. In addition, tables and descriptions with more detailed information about each alternative and the BLM LUPA, NCCP, and GCP components are contained in Volume II, Chapters II.2 through II.7.

**Table IV.1-1
Summary of Plan-wide Alternative Components**

Components	No Action ¹	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Approximate megawatts	20,000	20,000	20,000	20,000	20,000	20,000
Acres of permanent disturbance from RE development	123,000	145,000	148,000	134,000	150,000	148,000
DFA acres	n/a	2,024,000	1,070,000	2,473,000	1,406,000	1,608,000
Developable acres	9,788,000	n/a	n/a	n/a	n/a	n/a
Reserve land acres ²	n/a	14,921,000	15,039,000	15,087,000	15,161,000	14,478,000
BLM/LUPA Conservation Designations Acres ³	n/a	6,177,000	6,090,000 Least acres of NLCS, smallest National Scenic and Historic Trails (NSHT) Corridor	6,242,000 Most acres of NLCS and SRMAs, largest NSHT management corridor	6,261,000 Least acres of SRMAs	5,606,000

**Table IV.1-1
Summary of Plan-wide Alternative Components**

Components	No Action ¹	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Conservation Planning Areas Acres	n/a	1,142,000	1,287,000	1,183,000	1,238,000	1,210,000
SPEIS ⁴ Solar Energy Zones (SEZ) as DFA	SEZ land is available	Yes	Only a portion	Yes	Only a portion	Yes
Geographic distribution of DFAs	Based on current project locations	Mostly concentrated in a few locations, some smaller DFAs throughout Plan Area	Clustered in fewer locations, largely in areas of lowest biological conflict	DFAs geographically dispersed throughout Plan Area	DFAs dispersed but less development in Cadiz Valley and Chocolate Mtns (CVCM, Imperial Borrego Valley (IBV), and West Mojave and Eastern Slopes (WMES) ecoregion subareas	Similar to Preferred Alt. but with less in IBV
Solar MW and location	14,000 MW Most in CVCM and IBV	12,000 MW Throughout Plan Area but most in CVCM and WMES	15,000 MW Highest amount in IBV	9,000 MW Dispersed throughout Plan Area	14,000 MW Most in IBV and WMES	13,000 MW More development in CVCM and less in IBV and WMES

**Table IV.1-1
Summary of Plan-wide Alternative Components**

Components	No Action ¹	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Wind MW and location	5,000 MW Mostly WMES	3,000 MW Distributed fairly evenly with most in WMES	400 MW Highest in Pinto Lucerne Valley and Eastern Slopes (PLVES), WMES, and CVCM	6,000 MW Dispersed throughout Plan Area	1,000 MW Highest in PLVES and WMES	2,000 MW Distributed similarly to Preferred Alt.
Geothermal MW and location	300 MW Only in IBV	3,000 MW Mostly IBV and small amount in Owens River Valley	3,000 MW Almost all in IBV	3,000 MW Mostly IBV and small amount in Owens River Valley	3,000 MW Mostly IBV and small amount in Owens River Valley	3,000 MW Mostly IBV and small amount in Owens River Valley
Ground mounted distributed generation	700 MW	2000 MW	2000 MW	2000 MW	2000 MW	2000 MW

¹ For the No Action Alternative, available development lands are not defined as DFAs. Similarly, rather than Reserve Land, the No Action Alternative includes “existing protected areas.”

² There are approximately 7.6 million acres of existing Conservation within the Reserve Land Acres.

³ The BLM LUPA conservation designation acreage reported here includes both BLM-administered lands and non-BLM-administered inholdings within the designation. The inholdings are not subject to BLM policies.

⁴ Solar Programmatic Environmental Impact Statement (SPEIS).

Note: The following general rounding rules were applied to calculated values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Transmission

In addition to the three major components of the alternatives described above, there is a transmission scenario for each alternative. Transmission lines would be required both within and outside of DFAs. These alternative-specific transmission plans are described in text and shown on maps in Appendix K (Transmission Technical Group Report). These scenarios are based on the allocation of generation from renewable energy projects, as defined in Appendix F. Most transmission corridors are the same for all alternatives, but some alternatives would require an additional transmission line.

IV.1.2.1.2 Study Area Lands

Study Area Lands refer to three categories of lands shown on alternative maps: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs) and DRECP Variance Lands. The locations and analysis assumptions for each appear below, by alternative.

Future Assessment Areas

Lands within FAAs are neither reserve lands nor DFAs; they are simply deferred for future assessment. The LUPA applies the same criteria and processes to FAAs on BLM lands and on DRECP Variance Lands. The future assessment will determine their suitability for renewable energy development or for ecological conservation. FAAs for each alternative appear in Table IV.1-2.

**Table IV.1-2
Future Assessment Areas (FAAs) Defined by Alternative**

Alternative	Location of FAAs
Preferred Alternative 128,000 acres of FAAs total	<ul style="list-style-type: none"> • Just south of the I-15 and north of the Mojave Preserve near the California/Nevada border • Just west of State Route 14, northeast of the Town of Tehachapi • West of Lucerne Valley adjacent to State Route 247 • South of Historic Route 66, east of the Town of Amboy • South of the I-8 adjacent to the Imperial Sand Dunes
Alternative 1 0 acres of FAAs	<ul style="list-style-type: none"> • No FAAs • Preferred Alternative FAAs are “undesigned areas”
Alternative 2 109,000 acres of FAAs	<ul style="list-style-type: none"> • Immediately south of Marine Corps Air-Ground Combat Center (MCAGCC) Twentynine Palms both east and west of the City of Twentynine Palms • North of Victorville • The FAAs identified for the Preferred Alternative are “undesigned areas” in this alternative <u>except</u> FAA south of the Imperial Sand Dunes becomes a DFA
Alternative 3 11,000 acres of FAAs	<ul style="list-style-type: none"> • One FAA located in the Lucerne Valley, both east and west of State Route 247. • The FAAs identified for the Preferred Alternative are “undesigned areas” in this alternative <u>except</u> FAA south of the Imperial Sand Dunes becomes a DFA
Alternative 4 0 acres of FAAs	<ul style="list-style-type: none"> • No FAAs • Preferred Alternative FAAs are “undesigned areas” except • Portions of the FAA south of Historic Route 66 become DRECP Variance Lands

Special Analysis Areas

Two areas within the Plan Area have been designated for special ongoing analysis. This analysis will ultimately determine their DRECP designations, which will themselves be

determined before final agency decisions are made. The two SAAs have high value for both renewable energy development and ecological and cultural conservation and recreation. SAAs will be designated as DFAs or components of the reserve design in the Final EIR/EIS. Table IV.1-3 explains how these two SAAs are evaluated under each alternative.

**Table IV.1-3
Special Analysis Areas (SAAs) Defined by Alternative**

Alternative	Location of SAAs
Preferred Alternative 42,000 acres of SAAs total	<ul style="list-style-type: none"> • Silurian Valley (North of I-15 and east of National Training Center Fort Irwin; 16,000 acres) • Highway 395 (West of highway and north of State Route 58; 26,000 acres)
Alternative 1	• SAAs in the Preferred Alternative would be conservation lands
Alternative 2	• SAAs in the Preferred Alternative would be DFAs
Alternative 3	• SAAs in the Preferred Alternative would be conservation lands
Alternative 4	• Portions of the SAAs are shown as DRECP Variance Lands in Alternative 4 but the majority of these areas would be conservation lands (near Highway 395) and undesignated areas (near Fort Irwin).

DRECP Variance Lands

DRECP Variance Lands represent the BLM Solar PEIS Variance Lands² listed in Table IV.1-4. On DRECP Variance Lands, Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. Where Variance Lands are entirely on public land, they would be available for renewable energy development under the applicable BLM Land Use Plan. However, applicants would have to follow a variance process (See Volume II, Section II.3.2.1.2 for details of this process) before BLM would determine whether to reject or accept an application.

² The BLM’s Solar PEIS Record of Decision (ROD) defines a variance area as “an area that may be available for utility-scale solar energy ROW with special stipulations or considerations.” The BLM identified all lands outside of exclusion areas and SEZs as variance areas for utility-scale solar energy development. The Solar PEIS ROD allows applications for solar projects within variance areas to be processed by BLM on a case-by-case basis, but applicants have the responsibility to demonstrate that proposed projects will avoid, minimize, and/or mitigate, as necessary, sensitive resources, and to show that projects will be compatible with state and local plans (Final PEIS, Section 2.2.2.3).

**Table IV.1-4
 DRECP Variance Lands Defined by Alternative**

Alternative / Acres Variance Lands	Location of DRECP Variance Lands
Preferred Alternative 13,000 acres Variance Lands	<ul style="list-style-type: none"> • East of Highway 395, north of Independence in Inyo County • South of Sandy Valley along the California/Nevada border • West of Needles • Near State Route 62, west of Parker, Arizona, near the California/Arizona border • North of Blythe, immediately south of the Big Maria Mountains Wilderness Area • South of State Route 98, east of Imperial Valley, along the California/Mexico border
Alternative 1 37,000 acres Variance Lands	<ul style="list-style-type: none"> • Same as Preferred Alternative PLUS • Near Hidden Hills • South of Historic Route 66, east of MCAGCC Twentynine Palms, and both east and west of the City of Twentynine Palms • Near the Big Maria Mountain Wilderness Areas
Alternative 2 No Variance Lands	<ul style="list-style-type: none"> • No DRECP Variance Lands • Preferred Alternative Variance Lands are shown as undesignated areas except: • Variance Lands west of Parker and south of the Big Maria Mountain Wilderness Areas become NLCS conservation areas
Alternative 3 No Variance Lands	<ul style="list-style-type: none"> • No DRECP Variance Lands • Preferred Alternative Variance Lands are shown as undesignated areas
Alternative 4 588,000 acres Variance Lands	<ul style="list-style-type: none"> • In addition to Preferred Alternative DRECP Variance Lands: • North of Hidden Hills along the California/Nevada border • North of the I-15 east of Fort Irwin • Surrounding the Owens Dry Lake • East of California City north of Edward Air Force Base • Surrounding Barstow • Scattered around Adelanto, Victorville, and in Lucerne Valley • East and West of the City of Twentynine Palms • South of the I-40 near Ludlow • South of Historic Route 66 east of MCAGCC Twentynine Palms • North of the Rice Valley Wilderness and Big Maria Mountains Wilderness Area along State Route 62 • South of the I-10 east of the Chuckwalla Mountains Wilderness • South of the I-10, immediately north of the Palo Verde Mountains Wilderness • Scattered west and south of the Chocolate Mountains east of the Imperial Sand Dunes including east of Holtville and south of State Route 98

IV.1.2.2 Key Features of Each Alternative

The following sections identify the key features of each alternative analyzed in this volume. Detailed descriptions are presented in Volume I, Chapter I.3, Planning Process, and in Volume II, Chapter II.1, Approach to Developing Alternatives. The environmental impacts of each alternative are described in detail in subsequent Volume IV chapters. Maps showing the development areas appear in Volume II, Figures II.2-1, II.3-1, II.4-1, II.5-1, II.6-1, and II.7-1.

IV.1.2.2.1 No Action Alternative

The No Action Alternative contains over 9.7 million acres of land where renewable development is not prohibited and therefore could be developed. This EIR/EIS assumes renewable energy development build-out will follow the patterns established over the past several years. For example, no new development is assumed for ecoregion subareas with no renewable project development to date. Therefore, no new development is anticipated on about 3.4 million acres. On the other hand, the No Action Alternative includes almost 6.3 million acres where renewable energy projects could be built. The acres of impact, by technology, are proportionately distributed, and described below for the alternatives.

- No DFAs would be created. The geographic distribution of renewable energy development is estimated to be consistent with current development patterns and technology mix. Locations of development of renewable energy facilities is less restricted than under the action alternatives.
- Current development patterns emphasize:
 - Solar development in two ecoregion subareas: (1) Cadiz Valley and Chocolate Mountains, and (2) Imperial Borrego Valley.
 - Wind development in the West Mojave and Eastern Slopes ecoregion subarea, in the Tehachapi Mountains.
 - Geothermal development in Imperial Borrego Valley.
- Solar PEIS variance lands would remain the same as for the Solar PEIS, as explained in footnote 2. There would be no FAAs or SAAs.
- BLM LUPA Conservation Designations would remain the same.
- Conservation would continue in existing protected lands (Legislatively and Legally Protected Areas) and in areas managed by BLM for the conservation of resource values (existing ACECs or wilderness areas). There are over 3.2 million acres of BLM-managed public land currently in conservation status.
- No DRECP conservation strategy; assume existing regulations.

IV.1.2.2.2 Preferred Alternative

The Preferred Alternative has over 2 million acres of land that would be available for renewable energy development. The DFAs are geographically dispersed in the Imperial Valley, eastern Riverside, Lucerne Valley, Barstow area, Tehachapi area, and in smaller DFAs along the 395 corridor and near Hidden Hills. Its characteristics are:

- Geographically dispersed DFAs on public and private lands with a mix of solar, wind, and geothermal technologies.
- Range of siting flexibility for renewable energy development in DFAs.
- Dispersed solar with emphasis on solar in two ecoregion subareas: (1) West Mojave and Eastern Slopes, and (2) Cadiz Valley and Chocolate Mountains.
- Dispersed wind with most in two ecoregion subareas: (1) West Mojave and Eastern Slopes, and (2) Pinto Lucerne Valley and Eastern Slopes.
- Geothermal in two ecoregion subareas: (1) Imperial Borrego Valley, and (2) Owens River Valley.
- Study Area Lands – mix of SAAs, FAAs, and DRECP variance lands.
- BLM LUPA Conservation Designation lands generally balanced between ACECs and NLCS lands, with somewhat greater emphasis on NLCS lands.
- Alternative-specific reserve design is representative of a broad range of biological resources and resource values identified by the reserve design envelope. Conservation strategy reflects avoidance and compensation.

IV.1.2.2.3 Alternative 1

Alternative 1 has over one million acres of land where renewable energy could be developed. The DFAs are focused in the Imperial Valley, Lucerne Valley, and in the Barstow area. There are fewer DFAs in eastern Riverside and the Tehachapi area, and very small DFAs along the 395 corridor. Its characteristics are:

- Geographically confined DFAs with focus on private lands and the assumption that there will be more solar development than either wind or geothermal. Concentrated siting flexibility for renewable energy development.
- Emphasis on solar development in three ecoregion subareas: (1) Imperial Borrego Valley, (2) Pinto Lucerne Valley and Eastern Slopes, and (3) West Mojave and Eastern Slopes.

- Emphasis on wind development in two ecoregion subareas: (1) West Mojave and Eastern Slopes, and (2) Pinto Lucerne Valley and Eastern Slopes.
- Geothermal development in the Imperial Borrego Valley ecoregion subarea.
- Study Area Lands – limited DRECP variance lands, no SAAs or FAAs.
- BLM LUPA Conservation Designation lands emphasis on ACECs and wildlife allocation, less identification of lands with national resource values.
- Alternative-specific reserve design emphasis on protection of sand transport corridors, riparian and linkage areas in Cadiz Valley and Chocolate Mountains ecoregion subarea, Hwy 395 corridor, Fremont Valley, and Ridgecrest, in addition to elements included in alternative-specific reserve design for Preferred Alternative.
- Conservation strategy emphasis on avoidance.

IV.1.2.2.4 Alternative 2

Alternative 2 has over 2.4 million acres of land where renewable energy could be developed. The DFAs are geographically dispersed in the Imperial Valley including south of Chocolate Mountains, eastern Riverside, Lucerne Valley, the Barstow area, Tehachapi area, along the 395 corridor, in the Silurian Valley, and near Hidden Hills. Its characteristics are:

- Geographically dispersed development on public and private lands with the assumption that more wind power could be developed.
- Expanded siting flexibility for renewable energy development.
- Dispersed solar and wind.
- Geothermal in two ecoregion subareas: (1) Imperial Borrego Valley, and (2) Owens River Valley.
- Study Area Lands – expanded FAAs, no DRECP variance lands or SAAs.
- BLM LUPA Conservation Designation lands emphasis on NLCS, more identification of lands with national resource values.
- Alternative-specific reserve design with less protection of Fremont Valley, Ridgecrest, Silurian Valley, and south of Chocolate Mountains than in alternative-specific reserve design for Preferred Alternative.
- Conservation strategy emphasis on compensation.

IV.1.2.2.5 Alternative 3

Alternative 3 has over 1.4 million acres of land where renewable energy could be developed. The DFAs are focused in the Imperial Valley, Lucerne Valley, Barstow area, and in the Tehachapi area. It has fewer DFAs in eastern Riverside, and very small DFAs along the 395 corridor and near Searles Lake. Its characteristics are:

- Geographically dispersed DFAs on public and private lands with an assumption that solar technologies and geothermal will be more heavily developed.
- Range of siting flexibility for renewable energy development.
- Dispersed solar with emphasis in two ecoregion subareas: (1) Imperial Borrego Valley and (2) West Mojave and Eastern Slopes.
- Emphasis on wind in two ecoregion subareas: (1) Pinto Lucerne Valley and Eastern Slopes and (2) West Mojave and Eastern Slopes.
- Geothermal in two ecoregion subareas: (1) Imperial Borrego Valley and (2) Owens River Valley.
- Study Area Lands – confined FAAs, no DRECP variance lands or SAAs.
- BLM LUPA Conservation Designation lands balanced between ACECs and NLCS lands with somewhat greater emphasis on NLCS lands.
- Alternative-specific reserve design with more protection of Aeolian transport, riparian and linkage areas in Cadiz Valley and Chocolate Mountains ecoregion subarea, Hwy 395 corridor, Antelope Valley than in Preferred Alternative.
- Conservation strategy is a variation on the conservation strategy in the Preferred Alternative with avoidance and compensation.

IV.1.2.2.6 Alternative 4

Alternative 4 has over 1.6 million acres of land where renewable energy could be developed. The DFAs are focused in the Imperial Valley, eastern Riverside, Lucerne Valley, Barstow area, and in the Tehachapi area. There are fewer DFAs along the 395 corridor, near Searles Lake, and near Hidden Hills. Its characteristics are:

- Geographically dispersed DFAs on public and private lands with an assumption of somewhat more solar and less wind than the Preferred Alternative.
- Range of siting flexibility for renewable energy development.
- Emphasis on solar in one ecoregion subarea, the Cadiz Valley and Chocolate Mountains.

- Dispersed wind with most in one ecoregion subarea, the West Mojave and Eastern Slopes.
- Geothermal in two ecoregion subareas: (1) Imperial Borrego Valley and (2) Owens River Valley.
- Transmission – one new 500 kV line from Imperial Valley Substation to Sycamore Substation and two new 500 kV lines from Colorado River Substation to Valley Substation.
- Study Area Lands – DRECP variance lands consistent with Solar PEIS, not screened for DRECP, no FAAs or SAAs.
- BLM LUPA Conservation Designation lands balanced between ACECs and NLCS lands.
- Alternative-specific reserve design reflects expanded DRECP variance lands (which are not included in reserve lands or DFAs), resulting in less acreage available for reserve lands in this alternative.
- Conservation strategy is a variation on the conservation strategy in the Preferred Alternative with avoidance and compensation.

IV.1.2.3 BLM Land Use Plan Amendment Alternatives

Volume II describes the proposed LUPA decisions for each alternative. The BLM LUPA decisions will alter management actions and allowable uses of BLM-administered lands within the CDCA and within the Resource Management Plan areas of Bakersfield and Bishop. The proposed BLM LUPA does not include the Colorado River Corridor, which is under the management of BLM's Arizona State Office. The discussion in this section applies only to BLM LUPA lands within the Plan Area. BLM LUPA decisions for CDCA lands that extend beyond the Plan Area boundary are introduced in Section IV.1.3.1.3.

The BLM LUPA alternatives each contain some or all of the following components: DFAs, Study Area Lands, NLCS lands, ACECs, and wildlife allocations (see Figure II.3-4, Preferred Alternative – BLM LUPA, and Table II.3-26). Additionally, each LUPA alternative includes SRMAs and Extensive Recreation Management Areas (ERMAs), establishes VRM classes, establishes National Trail Corridors, nominates National Recreational Trails, and closes some grazing allotments. The effects of the different LUPA alternatives are discussed in this volume.

For the purpose of quantifying resource impacts from BLM LUPA decisions, future renewable energy impacts in DFAs and transmission development were calculated. Impacts from the BLM conservation land designations and the implementation of BLM-specific Conservation and Management Actions (CMAs) are analyzed and discussed qualitatively within each resource chapter of this volume.

IV.1.2.4 Natural Community Conservation Plan Alternatives

The Natural Community Conservation Planning Act requires that NCCPs provide for the conservation and management of Covered Species and natural communities on a landscape or ecosystem level through the creation and long-term management of habitat reserves or other equivalent conservation measures. Each of the NCCP alternatives includes the full range of Covered Activities anticipated under the DRECP for each of the interagency Plan-wide alternatives. The Plan-wide analysis of Covered Activities in the interagency alternatives therefore also serves as the analysis of Covered Activities in the NCCP alternatives.

To reflect the conservation that would occur under the NCCP, the NCCP alternatives each define the following means to provide for conservation within Reserve Design Lands:

- Each alternative has an **NCCP Conceptual Plan-wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas are defined for both BLM lands and other lands, including private and nonfederal public lands. These priority conservation areas are consistent with those identified in the interagency Plan-wide alternatives.
- Each alternative also has a **DRECP NCCP Reserve Design**, nested within the NCCP Conceptual Plan-wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA Conservation Designations that would be protected, maintained, and managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.
- **Other conservation actions** would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-wide Reserve Design, and would include the maintenance and management of all BLM LUPA Conservation Designation lands in accordance with BLM LUPA Conservation Designations.

Reserve design features and other conservation actions within the NCCP alternatives are consistent with and nested within the Plan-wide reserve design envelope in the interagency plan-wide alternatives, but differ in terms of how reserve design features are grouped within the NCCP Conceptual Plan-wide Reserve Design and the DRECP NCCP Reserve Design. The differences between the NCCP Conceptual Plan-wide reserve design alternatives and the DRECP NCCP Reserve Design alternatives are summarized in Table IV.1-5 and described in detail in Volume II, Section II.3.3.

A detailed analysis of biological resources is provided for each of the NCCP alternatives in addition to the biological resources analysis for the interagency Plan-wide alternatives. These NCCP differences in reserve design features do not affect nonbiological resources analyzed in this document. For nonbiological resources, the analysis of reserve design and CMAs under the NCCP is therefore equivalent to the Plan-wide analysis of the interagency alternatives.

**Table IV.1-5
NCCP Alternatives**

Alternative	(1) NCCP Conceptual Plan-wide Reserve Design		(2) Other Conservation Actions
	<i>Within the DRECP NCCP Reserve Design</i>	<i>Outside the DRECP NCCP Reserve Design</i>	
No Action Alternative	Not Applicable		
Preferred Alternative	<ul style="list-style-type: none"> • 314,000 acres of BLM LUPA Conservation Designations on BLM land • 111,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 868,000 acres of BLM LUPA Conservation Designations on BLM land • 554,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 3,727,000 acres of BLM LUPA Conservation Designations on BLM land
Alternative 1	<ul style="list-style-type: none"> • 186,000 acres of BLM LUPA Conservation Designations on BLM land • 93,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 940,000 acres of BLM LUPA Conservation Designations on BLM land • 514,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 3,743,000 acres of BLM LUPA Conservation Designations on BLM land
Alternative 2	<ul style="list-style-type: none"> • 507,000 acres of BLM LUPA Conservation Designations on BLM land • 303,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 1,448,000 acres of BLM LUPA Conservation Designations on BLM land • 472,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 3,233,000 acres of BLM LUPA Conservation Designations on BLM land
Alternative 3	<ul style="list-style-type: none"> • 320,000 acres of BLM LUPA Conservation Designations on BLM land • 109,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 973,000 acres of BLM LUPA Conservation Designations on BLM land • 476,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 3,737,000 acres of BLM LUPA Conservation Designations on BLM land
Alternative 4	<ul style="list-style-type: none"> • 291,000 acres of BLM LUPA Conservation Designations on BLM land • 109,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 1,108,000 acres of BLM LUPA Conservation Designations on BLM land • 545,000 acres of non-BLM lands 	<ul style="list-style-type: none"> • 3,038,000 acres of BLM LUPA Conservation Designations on BLM land

Note: The following general rounding rules were applied to calculated values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.1.2.5 General Conservation Plan Alternatives

The USFWS proposed GCP Permit Area includes all nonfederal lands within the Plan Area. The conservation strategy and Covered Activities under the GCP consist of the DRECP strategy and Covered Activities that apply to nonfederal lands. The California Energy Commission (CEC) and California State Lands Commission (CSLC) are filing applications for permits under the GCP as part of the DRECP review process. Counties may become applicants in the future. Appendix F, USFWS General Conservation Plan, contains the proposed GCP and incidental take permit applications submitted to USFWS by CEC and CSLC. Table IV.1-6 describes GCP alternatives by showing the development and conservation that would be on private lands. The impact analysis in each section assesses how the GCP Covered Activities on nonfederal lands would impact the particular resource.

**Table IV.1-6
Characteristics of GCP Alternatives**

Alternative	Total Acres Available in CPAs on Nonfederal Lands	Total Acres Available for Non-Acquisition Mitigation*	Total Acres of DFAs on Nonfederal Lands
No Action Alternative	434,000	N/A	3,434,000
Preferred Alternative	312,000	1,182,000	1,632,000
Alternative 1	338,000	1,126,000	971,000
Alternative 2	375,000	1,955,000	1,730,000
Alternative 3	330,000	1,293,000	1,175,000
Alternative 4	328,000	1,399,000	1,332,000

* BLM-administered lands corresponding to the DRECP NCCP Reserve Design where GCP permittees' non-acquisition mitigation measures may be implemented.

Note: The following general rounding rules were applied to calculated values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.1.3 Approach to Impact Assessment

IV.1.3.1 Plan Components Analyzed in Volume IV

Each Volume IV chapter considers the potential impacts to each resource for each of the following components:

1. Construction, operation, and decommissioning of covered renewable energy and transmission activities within the Plan Area.

2. Conservation Actions including all CMAs and reserve design components within the Plan Area.
3. BLM LUPA decisions, both within and outside of the Plan Area.
4. Transmission facilities required outside of the Plan Area.

As described in Sections IV.1.2.4 and IV.1.2.5, impacts are also described for the NCCP and the GCP. The organization of each chapter is presented in Section IV.1.6.

IV.1.3.2 Renewable Energy and Transmission Facilities

The Covered Activities of the Plan (described in detail for each alternative in Volume II) include the construction and operation of solar, wind, and geothermal renewable energy facilities, as well as the transmission lines and substations needed to deliver electricity to load centers. Each alternative analyzed in this document includes components of renewable generation and transmission. The following describes these components and the range of their potential effects.

IV.1.3.2.1 Covered Activities: Effects of Renewable Energy Generation

Under each action alternative, renewable energy generation facilities would primarily be constructed within Plan Area DFAs. Three major phases of project activity create the greatest effects on the environment: site characterization, construction and decommissioning, and operations and maintenance. Section II.3.1.3 (Overview Description of Covered Activities) defines the Covered Activities in more detail.

Site Characterization. Before the construction of renewable energy facilities begins, many site characterization activities are required. These activities are often completed even before a formal application is submitted to a lead agency since an application must contain detailed information on site resources. Site characterization includes reconnaissance surveys (e.g., biological or cultural resource surveys), geotechnical borings, meteorological station installations, and vehicle use along temporary or permanent access roads.

Construction and Decommissioning. The major impacts from construction are ground disturbance: vegetation clearing, earth moving, road construction, ground excavation, foundation construction, drilling and blasting, and other installation activities. Decommissioning requires structure removal, which in turn creates similar disturbances as during construction, in addition to noise, dust, and vehicle traffic.

Operation and Maintenance. Some of the activities from operating and maintaining a renewable energy facility include panel washing, road grading, facility inspection, and vehicle use. These activities also cause impacts that may occur over many years. In

addition, actual operation of the renewable energy facilities can affect resources through many different mechanisms. For example, birds and bats could be killed or injured if they collide with wind turbine blades or with transmission lines and conductors. The glint, glare, and solar flux from the sun, reflecting off solar panels or mirrors, can also affect birds, bats, and insects. Large industrial facilities can also diminish the visual enjoyment of visitors to the desert.

IV.1.3.2.2 Covered Activities: Effects of Transmission Facilities

Transmission lines and substations would be required within the Plan Area to deliver electricity from remote renewable energy facilities to high-energy-demand population centers. Transmission facilities include transmission lines of various ratings, substations, access roads, and construction yards. The impacts of transmission facilities would also be phased in in three stages: site characterization, construction, and operation and maintenance. The analysis presented here is as detailed as possible, but the specific locations of future transmission are not known at this time.

IV.1.3.2.3 Analysis Outside the Plan Area

Transmission Outside the Plan Area

As discussed in Volume II, transmission outside the Plan Area is not a Covered Activity. However, renewable energy development within the Plan Area will require additional transmission outside of the Plan Area. Each resource section analyzes these transmission impacts in as much detail as possible given current information and assumptions of possible future transmission line locations, but the specific locations of future transmission are not known at this time.

BLM Land Use Plan Amendment Decisions Outside the Plan Area

Each resource section addresses the potential effects of LUPA decisions made within BLM-administered lands (within the CDCA boundary) but outside of the Plan Area. These decisions include designating NLCS lands and ACECs and establishing VRM classes. BLM-specific CMAs would also apply within the CDCA but outside the Plan Area. Current multiple use classes would be replaced with land use allocations consistent with the DRECP, except that DFAs would not be designated. The analysis of BLM LUPA decisions for CDCA lands outside of the Plan Area uses the same approach as for resources within the Plan Area. However, the amount and quality of data vary with each resource impact.

IV.1.3.3 Reserve Design and Conservation and Management Actions

As previously described, a biological reserve design that would meet the Plan BGOs was developed for each alternative (defined in Volume I, Section I.3.3). Volume II presents the reserve design in the description of each alternative. A map for each alternative identifies the reserve design and illustrates how that alternative meets Plan-wide BGOs. The reserve design maps identify the locations of CMAs (including avoidance, minimization, compensation, conservation, and the management actions required to achieve the conservation strategy) for each alternative. Certain CMAs also apply within the DFAs to mitigate the impacts of Covered Activities. Additionally, BLM has specific CMAs that apply only on BLM lands, as detailed in Volume II, Section II.3.2.3, BLM-Specific CMAs.

Each action alternative also includes Conservation Planning Areas, which are on private lands only and fall outside of Existing Conservation areas and BLM LUPA conservation designations. Part of the DRECP reserve system will be assembled from lands or conservation easements acquired from willing sellers or owners. Conservation Planning Areas are locations where the compensatory mitigation for Covered Activities would be focused.

Implementing these conservation actions can create a range of environmental effects. For example, management within reserve areas may protect sensitive soil resources, or may restrict recreational uses or agricultural development. Because some conservation activities may have short-term adverse impacts on Covered Species and Natural Communities, they are included as Covered Activities under the DRECP. The effects of the conservation actions are analyzed for each alternative in this EIR/EIS.

IV.1.4 Methods and Organization of Impact Analysis

Each subsequent chapter within Volume IV defines the impact assessment methods used to evaluate the impacts of Covered Activities and Conservation Actions. The terms “effects” and “impacts” are synonymous and include both beneficial and adverse effects. Both terms include direct, indirect, and cumulative impacts.

Impacts may also be either short term or long term. For purposes of this analysis, short-term impacts generally occur within five years of an action. For example, construction noise impacts would be short term. Loss of vegetation from site construction would be a long-term impact because of long recovery periods in desert ecosystems. Another example of a long-term impact would be reduction of available groundwater from pumping water to clean panels or mirrors, or to meet other operational needs.

Following are the Volume IV chapter titles. Several topics indicated with asterisks, are evaluated only under NEPA. All other sections are evaluated under both CEQA and NEPA.

IV.2 Air Quality	IV.15 Mineral Resources
IV.3 Meteorology and Climate Change	IV.16 Livestock Grazing**
IV.4 Geology and Soils	IV.17 Wild Horses and Burros**
IV.5 Flood Hazard, Hydrology, and Drainage	IV.18 Outdoor Recreation
IV.6 Groundwater, Water Supply, and Water Quality	IV.19 Transportation and Public Access
IV.7 Biological Resources	IV.20 Visual Resources
IV.8 Cultural Resources	IV.21 Noise and Vibration
IV.9 Native American Interests	IV.22 Public Safety and Services
IV.10 Paleontological Resources	IV.23 Socioeconomics and Environmental Justice
IV.11 Land Use and Policies	IV.24 Department of Defense Lands and Operations**
IV.12 Agricultural Land and Production	IV.25 Cumulative Impacts Analysis
IV.13 BLM Lands and Realty—Rights-of-Way and Land Tenure**	IV.26 Other CEQA and NEPA Considerations
IV.14 BLM Land Designations, Classifications, Allocations, and Lands with Wilderness Characteristics**	IV.27 Comparison of Alternatives

***NEPA analysis only*

As described in Volume III, Chapter III.1 Environmental Setting/Affected Environment, “existing conditions” (CEQA) and “affected environment” (NEPA) comprise the “environmental baseline” when considering effects of the Plan, including LUPA. Impacts are assessed in each alternative by examining resource changes against a baseline. Chapters IV.2 through IV.23 are resource-specific analyses. Each chapter identifies the effects from implementing each alternative, along with mitigation measures, to reduce impacts judged to be significant under CEQA.

IV.1.4.1 Impact Assessment Methodology

Action Alternatives

This section defines the steps used to assess the impacts of Covered Activities, and to evaluate those impacts within the BLM LUPA, GCP, and NCCP. More specific descriptions of this approach for each resource discussion are presented at the beginning of each Volume IV chapter.

Step 1: Geographic Distribution of Impact Acreage

As described in Volume II, Section II.3.1.3 and in Appendix F, the acreage impacted by each renewable energy technology has been allocated to the DFAs based on generation capacity, expressed in megawatts, in each ecoregion subarea. The method used to allocate the generation capacity is described in Appendix F1. Using standard acreage assumptions for each

technology, ground disturbance was quantified for each technology and alternative. The acreage of ground disturbance from each technology forms the basis for impact analysis in many environmental analyses.

Step 2: Development Restriction Within DFAs

Application of CMAs would preclude renewable energy development in portions of the DFAs (the CMAs are explained in detail in Volume II, Section II.3.1.1.5). The DFA area remaining for development after applying the CMAs is the “net available DFA.”

Step 3: Distribution of Technologies and Acres of Development Within Sub-Units and DFAs

The DFAs for each alternative include more land area than needed to construct the approximately 20,000 MW of renewable energy projects defined in the Plan. This larger area allows flexibility in siting projects within DFA boundaries and also allows for the fact that not all land within a DFA is either suitable or available for development. The specific location of future development within DFAs is unknown.

In order to determine environmental effects within each DFA, the proportion of ground disturbance was first calculated, then the acres of each resource were calculated using the same proportion. The analysis (using Geographic Information Systems) then applies this proportional model to define the acres of impacts for each resource. For example, if 5% of the DFAs in an ecoregion subarea would be impacted by solar development, then the analysis assumes that 5% of the resources in that DFA would be impacted by solar development. In this example, if resources exist in only one portion of a DFA, the analysis assumes 5% of the acres of that resource within the DFA would be impacted, not 5% of the entire DFA. The net result is the number of acres impacted by each resource, from each technology developed within a DFA. The result of this process is a GIS-based formula that pro-rates acres of impact within each DFA, based on the technology-specific acreage required to develop that DFA's generation capacity.

Again, the impact estimates for each alternative have different assumptions, depending upon the relative mix of solar, wind, and geothermal development. However, the selection of one alternative over another is not expected to affect the mix of technologies that are actually built in the Plan Area during the DRECP time frame.

Step 4: Effects of Transmission Facilities

Transmission facilities are unique among the Covered Activities because they are not confined to DFAs. Transmission impacts would occur both within and outside of DFAs. Within DFAs, transmission would be required because each generation facility needs trans-

mission infrastructure to export its generated electricity. Additional transmission facilities would be located both within and outside of DFAs for the transmission lines and substations required to transport electricity from multiple remote sources to populated areas of high electricity demand. The Transmission Technical Group report (see Appendix K), defines the estimated acreage needs for transmission and substation facilities within the Plan Area. This acreage data is used to define the total impact of Covered Activities.

IV.1.4.2 Impact Reduction Strategies and Mitigation Measures

This EIR/EIS considers impact reduction strategies in several ways. First, the Preferred Alternative and Alternatives 1 through 4 have been designed to incorporate the reserve design, which includes CMAs that will avoid or minimize the impacts of renewable energy development. These reserve designs are described in Volume II, Chapter II.3, Section II.3.1, Description of Preferred Alternative. Reserve Design Lands comprise existing conservation areas (Legislatively and Legally Protected Areas), BLM LUPA Conservation Designations, and Conservation Planning Areas. Additionally, LUPA CMAs designed to limit impacts from activities such as grazing, mining, and recreation are described in Volume II for each alternative.

The Regulatory Setting for each Volume III chapter discusses existing laws and regulations that apply to renewable energy development. Existing BLM land use plans (e.g., CDCA) and regional plans (e.g., Solar PEIS) apply to all development within certain parts of the Plan Area and contain mandatory provisions to reduce impacts of development on BLM land. These existing plans are described in Volume II under the No Action Alternative.

Each chapter in Volume IV summarizes existing laws and regulations and applicable components of existing land use plans. After considering each alternative's reserve design and CMAs, specific additional mitigation measures are presented if residual significant adverse impacts may still occur.

Renewable energy development built pursuant to DRECP, NEPA and CEQA documents could incorporate some or all of the mitigation measures specified in the DRECP. Mitigation measures in this document could therefore become project-specific requirements in supplemental environmental documents.

IV.1.4.3 Cumulative Impacts

The cumulative impact assessment presented in Chapter IV.25 analyzes how environmental conditions may be affected by the DRECP in combination with other likely past, present, and reasonably foreseeable future activities within the Plan Area. The analysis also considers projects near DRECP-associated transmission projects and LUPA land use designations located outside the Plan Area.

IV.1.5 Other Required CEQA and NEPA Considerations

Chapter IV.26 addresses the requirements defined in this section.

IV.1.5.1 CEQA Requirements

Section IV.26.1 contains analysis required under CEQA that is included elsewhere in the document. These include:

Significant Environmental Effects That Cannot Be Avoided and Effects Not Found to Be Significant. CEQA requires that an EIR describe all significant impacts, including those that can be mitigated but not reduced to a less than significant level. Where impacts cannot be alleviated without imposing an alternative design, project specifics should be justified (14 CCR 15126.2[b]). CEQA also requires the identification of effects not found to be significant (14 CCR15128).

Significant Irreversible Environmental Changes. An EIR must also describe nonrenewable resource uses during initial and continued phases of a project that may be irreversible if a large commitment of such resources makes removal or future nonuse unlikely. Primary impacts and, particularly, secondary impacts generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with a project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified (14 CCR 15126.2[c]).

Growth-Inducing Impacts. CEQA Guidelines require that an EIR discuss the ways in which a proposed project could foster economic or population growth, or result in the construction of additional housing, either directly or indirectly, in the surrounding environment. For example, increased population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects (14 CCR 15126.2[d]).

NEPA (1508.8[b]) also requires analysis of growth-inducing effects. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems, including ecosystems.

Energy Conservation (14 CCR Appendix F). An EIR must discuss the potential energy impacts of the proposed Plan, emphasizing avoidance or reduction of inefficient, wasteful, or unnecessary energy consumption. The means of achieving this goal include: (1) decreasing overall per capita energy consumption, (2) decreasing reliance on fossil fuels such as coal, natural gas, and oil, and (3) increasing reliance on renewable energy resources.

IV.1.5.2 NEPA Requirements

NEPA requires definition of several specific considerations described below. Section IV.26.2 analyzes each of these issues.

Relationship of Short-Term Uses of the Environment and Long-Term Productivity. CEQ regulations (40 CFR 1502.16), the BLM NEPA Handbook (H-1790-1), and the USFWS Manual (Part 550, Chapter 2.4) require discussion of the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity that would be involved in implementing the preferred alternative or other alternatives.

Irreversible and Irretrievable Commitment of Resources. CEQ regulations (40 CFR 1502.16), the BLM NEPA Handbook (H-1790-1), and the USFWS Manual (Part 550, Chapter 2.4) require discussion of any adverse effects that cannot be avoided, and any irreversible and irretrievable commitments of resources if the project is implemented. An irreversible commitment of resources is made when direct and indirect effects of the Covered Activities limit the options for future use of the land. A resource commitment is considered irretrievable when a resource is no longer available for future use. Examples of irretrievable commitments apply to loss of production, harvest, or use of natural resources.

Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures. NEPA requires an EIS to describe energy requirements and conservation potential of various alternatives and mitigation measures (40 CFR 1502.16[e]).

Indirect Effects Including Growth-Inducing Effects. NEPA requires an analysis of indirect effects, including growth-inducing effects (1508.8[b]). Indirect effects may include induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems, including ecosystems.

IV.1.6 Organization of Each Analysis Section

Volume IV contains 22 analysis chapters, as listed in Section IV.1.4. Chapters IV.2 through IV.23 are organized as shown below. In addition to the resource-specific impact analyses, Chapter IV.24 describes Department of Defense lands, Chapter IV.25 discusses cumulative impacts, and Chapter IV.26 covers additional CEQA and NEPA requirements. Chapter IV.27 summarizes and compares the impacts of the five alternatives evaluated in this volume.

Each Volume IV chapter presents the following topics for each alternative, using the Preferred Alternative as an example:

- DRECP Plan-wide Impacts: Preferred Alternative

- Plan-wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development
- Impacts in Study Area Lands
- Impacts From Conservation Actions
- BLM LUPA Impacts on BLM Land: Preferred Alternative
 - Impacts From Renewable Energy and Transmission Development
 - Impacts in Study Area Lands on BLM LUPA Lands
 - Impacts of Changes to BLM Land Designations
- Impacts of Natural Community Conservation Plan: Preferred Alternative
- Impacts of General Conservation Plan: Preferred Alternative
- Impacts Outside of Plan Area
 - Impacts of Transmission Outside of Plan Area
 - Impacts of BLM LUPA Decisions Outside of Plan Area
- CEQA Significance Determination for the Preferred Alternative
- Comparison of Preferred Alternative With No Action Alternative
 - Preferred Alternative Compared With No Action Alternative for Plan-wide DRECP and NCCP
 - Preferred Alternative Compared With No Action Alternative for the BLM Land Use Plan Amendment
 - Preferred Alternative Compared with No Action Alternative for the NCCP
 - Preferred Alternative Compared With No Action Alternative for the GCP
- Comparison of Alternatives 1 through 4 With Preferred Alternative
 - Alternatives 1 through 4 Compared With Preferred Alternative for Plan-wide DRECP and NCCP
 - Alternatives 1 through 4 Compared With Preferred Alternative for the BLM Land Use Plan Amendment
 - Alternatives 1 through 4 Compared with Preferred Alternative for the NCCP
 - Alternatives 1 through 4 Compared With Preferred Alternative for the GCP