IV.2 AIR QUALITY

This chapter analyzes impacts of the Desert Renewable Energy Conservation Plan (DRECP or Plan) on air quality. The analysis is at a programmatic level. Areas within each air basin share the same air masses and have similar ambient air qualities. It is important to note, therefore, that in this analysis the air quality within each DRECP ecoregion subarea depends upon the air quality in its associated air basin(s). The current air quality conditions for each of the air basins in the Plan Area are described in Volume III, Section III.2.4.

IV.2.1 Approach to Impact Analysis

IV.2.1.1 General Methods

The Plan Area encompasses approximately 33% of the Great Basin Valleys Air Basin, approximately 94% of the Mojave Desert Air Basin, approximately 70% of the Salton Sea Air Basin, and approximately 10% of the San Diego Air Basin. Table IV.2-1 shows each ecoregion subarea, the current conditions in each ecoregion subarea for pollutants of most concern (criteria pollutants), and the attainment status of air quality standards at both state and federal levels.

The DRECP Environmental Impact Report/Environmental Impact Statement (EIR/EIS) alternatives would generate renewable energy development applications (i.e., solar, wind, geothermal, and transmission) within identified Development Focus Areas (DFAs). Each project must undergo applicable individual National Environmental Policy Act (NEPA) or California Environmental Quality Act (CEQA) analysis for a proposed project's impacts. Air emissions from anticipated projects in the Plan Area would occur throughout the life of the DRECP across all DFAs. Because of the size of the Plan Area and the long-term nature of the Plan, it is unlikely that the timing (e.g., construction) and location of projects would overlap.

Comparisons of alternatives are based on anticipated emissions (e.g., equipment and vehicle exhaust and dust from ground disturbance) that may be caused by renewable energy and transmission projects in affected air basins.

Appendix R2.2 includes tables that illustrate potential dust emissions from ground disturbance in the Plan Area.

Table IV.2-1
Area Designations

Ecoregion Subarea	Federal Area Designations												State Area Designations							
	Ozone						*PM10*				*PM2.5*		*Ozone*	*PM10*	*PM2.5*			*Hydrogen Sulfide (H_2S)*		
	1997 8-hour Standard			*2008 8-hour Standard*																
	Attainment (maintenance)	*Moderate Nonattainment*	*Severe-15 Nonattainment*	*Unclassified/ Attainment*	*Marginal Nonattainment*	*Severe-15 Nonattainment*	*Unclassified*	*Attainment (maintenance)*	*Moderate Nonattainment*	*Serious Nonattainment*	*Unclassified/ Attainment*	*Nonattainment*	*Nonattainment*	*Nonattainment*	*Unclassified*	*Attainment*	*Nonattainment*	*Unclassified*	*Attainment*	*Nonattainment*
Cadiz Valley and Chocolate Mountains	X	X	X	X	X	X	X		X	X	X		X	X	X			X		
Imperial Borrego Valley	X	X			X					X	X	X	X	X	X		X	X		
Kingston and Funeral Mountains	X		X	X		X	X		X		X		X	X	X	X	X	X	X	
Mojave and Silurian Valley	X	X	X	X	X	X	X		X		X		X	X	X		X	X		X
Owens River Valley	X			X			X	X	X	X	X		X	X		X		X		
Panamint Death Valley	X	X		X	X		X	X	X		X		X	X	X	X		X	X	X
Pinto Lucerne Valley and Eastern Slopes	X		X	X		X	X		X	X	X		X	X	X		X	X		
Piute Valley and Sacramento Mountains	X			X					X		X		X	X	X			X		
Providence and Bullion Mountains	X		X	X		X			X		X		X	X	X		X	X		
West Mojave and Eastern Slopes	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

IV.2.1.2 CEQA Standards of Significance

The following questions in the CEQA Guidelines Appendix G are relevant to this analysis:

- Would the project conflict with or obstruct implementation of the applicable air quality plan?
- Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?
- Would the project expose sensitive receptors (e.g., schools, day care facilities, hospitals) to substantial pollutant concentrations?
- Would the project create objectionable odors affecting a substantial number of people?

Each of these questions is relevant to this analysis since air emissions from short-term construction activities or from the operation of renewable energy projects could violate federal and state air quality standards or contribute to air quality violations.

All of the Plan ecoregion subareas, with the exception of the Owens River Valley and the Piute Valley and Sacramento Mountains ecoregion subareas, are in some form of nonattainment for ozone for the federal standard. All of the ecoregion subareas are in nonattainment for ozone for the state standard. As shown in Volume III, Figure III.2-6 (Federal PM 10 Attainment Status), parts of all of the ecoregion subareas are in some form of nonattainment for particulate matter less than 10 micrometers in diameter (PM10) for both federal and state standards. The Plan Area contains portions in federal nonattainment for 1997 8-hour ozone, 2008 8-hour ozone, PM10, PM2.5, and state nonattainment for ozone, PM10, PM2.5, and H_2S.

Renewable energy facilities and their associated transmission facilities could expose sensitive receptors to substantial concentrations of hazardous or toxic air pollutants, especially from diesel-powered equipment. Geothermal field development may also cause emissions of odorous H_2S.

Renewable energy development and Plan components could conflict with or obstruct implementation of applicable air quality plans in existing nonattainment areas. The Plan Area contains multiple Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) that are involved in air quality planning. The State Implementation

Plan (SIP) is a collection of plans developed by state and local air quality agencies and submitted for Environmental Protection Agency (EPA) approval; these plans set forth the state's strategies for achieving federal air quality standards. As mentioned in Volume III, Section III.2.1.4, individual AQMDs and APCDs are responsible for preparing and implementing their local portions of the SIP; activities that conflict with that plan could exacerbate nonattainment conditions. Chapter IV.25 addresses cumulative emissions issues.

IV.2.2 Typical Impacts Common to All Action Alternatives

This chapter describes the typical impacts of solar, wind, geothermal, and transmission project facilities, which will generate air pollutant emissions at all stages of their development. The primary concerns are fugitive dust emissions from soil or ground disturbance and emissions from equipment and motor vehicle engine exhaust.

The typical levels of emissions caused by renewable energy facilities would not likely contribute to the regional degradation of air quality. Dominant air quality impacts would be from construction-phase activities, which are typically limited to the first few years of project development. (See Appendix R1.2-1 for examples of the construction-phase emissions for existing projects in the Plan Area.) Lower levels of emissions typically occur during the operations phase of each project, from activities including routine upkeep of the site, security patrols, use of stationary sources like emergency generators or auxiliary boilers, employee transportation, and vegetation removal.

Construction activities for solar, wind, geothermal, and right-of-way (ROW) development would include mobilization, land clearing, earth moving, road construction, ground excavation, potential drilling and blasting, foundation construction, and installation activities. Heavy equipment used during site preparation would also include bulldozers, scrapers, trucks, cranes, rock drills, and possibly blasting equipment.

Construction and operation activities would increase the amounts of particulate matter and precursors to PM10 and PM2.5, pollutants for which many air basins are in nonattainment. Similarly, increased amounts of ozone precursors (volatile organic compounds [VOCs] and nitrogen oxides [NOx]) would occur from engine exhaust emissions, further exacerbating ozone nonattainment conditions.

Increased health risks would result for people exposed to excessive concentrations of hazardous or toxic air pollutants in emissions from gasoline and diesel-powered equipment. Diesel particulate matter is designated as a toxic air contaminant in California.

IV.2.2.1 Impacts of Renewable Energy and Transmission Development

IV.2.2.1.1 Impacts of Site Characterization

The typical air impacts from site characterization activities—which include developing temporary access roads, conducting site reconnaissance, drilling geotechnical borings, and constructing meteorological towers—would be the same for each renewable energy technology (with the addition of specialized surveys for geothermal development). A list of these activities appears in Volume II, Sections II.3.1.3.1 to II.3.1.3.4.

IV.2.2.1.2 Impacts of Construction and Decommissioning

The typical air impacts from construction and decommissioning activities are from fugitive dust from grading, vehicles driving on unpaved surfaces or roadways, and emissions from heavy-duty construction equipment and vehicles carrying construction materials and workers. These emissions occur during site development and preparation, transmission line development, building and roadway construction, and during decommissioning and facility removal. The types of emissions would be the same for each renewable energy technology. An in-depth list of activities is in Volume II, Sections II.3.1.3.1 to II.3.1.3.4.

High levels of construction-phase emissions can exacerbate regional nonattainment conditions or expose sensitive receptors to substantial concentrations of hazardous or toxic air pollutants during project construction. Assessing the air quality impacts from construction emissions usually involves project-specific quantification of air pollutants emitted by construction activities for each phase of site development for each project.

Environmental documents for existing renewable energy projects in the Plan Area show a wide range in levels of construction-phase emissions and depend, among other factors, on each project's particular accessibility, phasing or sequencing of activity, and its fleet of construction vehicles and equipment. Greater levels of emissions occur at sites where greater electrical generating capacities are installed. On average, the emissions that occur during a typical project's construction phase are reflected, for each megawatt (MW) of installed capacity, in the following emissions factors (see Section III.2.8 and Appendix R1.2-1):

- 0.29 tons of NOx per MW of capacity
- 0.07 tons of VOC per MW
- 0.20 tons of PM10 per MW
- 0.04 tons of PM2.5 per MW

IV.2.2.1.3 Impacts of Operations and Maintenance

Emissions are caused by operations and maintenance activities such as routine upkeep of the site, security patrols, use of emergency generators, employee transportation, and vegetation removal. Dust emissions come from ground disturbance from access and spur road maintenance. Products of combustion are emitted by the use of natural gas, auxiliary heating of solar thermal technologies, and by the use of gasoline and diesel fuel for facility maintenance activities. Backup power supplies or fire water-pumping engines could also generate emissions if long-term operations and maintenance include diesel-powered emergency-use engines at substations and renewable energy facility sites. An in-depth list of operations and maintenance activities is in Volume II, Sections II.3.1.3.1 to II.3.1.3.4. High levels of emissions can exacerbate regional nonattainment conditions or expose sensitive receptors to substantial concentrations of hazardous or toxic air pollutants.

Geothermal well-venting emissions include hydrogen sulfide (H_2S), carbon dioxide (CO_2), mercury, arsenic, and boron (when these compounds are contained in geothermal steam). H_2S is generally the primary pollutant of concern, and typically an air monitoring system is installed during geothermal field development. People exposed to high concentrations of H_2S or other hazardous or toxic air pollutants could experience adverse health effects, including cancer and noncancer health risks; even at very low concentrations, H_2S odors are objectionable since they smell like rotten eggs.

IV.2.2.2 Impacts of the Reserve Design

In general, the reserve design would define large areas where development would be very limited or prohibited. Construction activities would be limited, and new vehicle emissions would be at very low levels. In areas with no development, there would be no sources of construction emissions or stationary sources of emissions, so there would be no effect on meeting the requirements of the National Ambient Air Quality Standards, SIP, and rules within local AQMDs and APCDs.

IV.2.2.3 Impacts of Bureau of Land Management (BLM) Land Use Plan Decisions

IV.2.2.3.1 Impacts of Renewable Energy Development and Transmission on BLM Lands

The typical impacts from the various renewable energy and transmission technologies on BLM lands would be the same as those described in Section IV.2.2.1. However, the specific locations in which energy and transmission development will be allowed will be driven by LUPA decisions, which may encourage or restrict development in some areas.

IV.2.2.3.2 Impacts of BLM Land Designations and Management Actions

Because BLM LUPA land designations would be managed to protect ecological, historic, cultural, scenic, scientific, and recreation resources and values, they would also provide general protection for air resources**.**

IV.2.2.4 Impacts of Natural Community Conservation Plan and General Conservation Plan

The Natural Community Conservation Plan (NCCP) would be administered by the California Department of Fish and Wildlife and would be applicable to the entire Plan Area. The General Conservation Plan (GCP) would be administered by the U.S. Fish and Wildlife Service and would be applicable to nonfederal lands, a subset of the entire Plan Area.

IV.2.2.4.1 Natural Community Conservation Plan

The impacts of renewable energy development permitted under the NCCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.2.2, and for each alternative described here.

IV.2.2.4.2 General Conservation Plan

The types of impacts resulting from renewable energy development permitted under the GCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.2.2. However, the locations where these impacts would occur would vary by alternative. Any differences in these impacts from locational differences are described for each alternative.

IV.2.3 Impact Analysis by Alternative

The following sections present impact analyses on air quality for the No Action Alternative, the Preferred Alternative, and Alternatives 1 through 4.

IV.2.3.1 No Action Alternative

IV.2.3.1.1 Impacts Within the Entire Plan Area in No Action Alternative

The No Action Alternative assumes the state's renewable energy goals would be achieved absent the DRECP and that renewable energy, transmission development, and mitigation for those projects in the Plan Area would be developed on a project-by-project basis consistent with past and ongoing renewable energy and transmission projects.

IV.2.3.1.1.1 Impacts and Mitigation for Renewable Energy and Transmission Development in No Action Alternative

Impact Assessment

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

Development of renewable energy projects and transmission would cause an increase in construction dust and exhaust emissions from construction equipment and vehicles; these emissions could violate or contribute to an existing violation of air quality standards, which would in turn be an air quality impact during construction. The sources of construction dust and the types of motor vehicle or off-road equipment sources would be similar at all project sites; all sites would require construction equipment and crews and create permanent ground disturbances under the No Action Alternative.

Based on existing projects in the Plan Area and emissions factors described as typical impacts in Section IV.2.2 (see Section III.2.8 and Appendix R1.2-1), total construction emissions of nonattainment pollutants are estimated for the development of approximately 20,000 MW of installed capacity of renewable energy projects. Construction-phase emissions would be distributed across the Plan Area and would be gradually emitted over time until all projects are operational. For each specific project, a wide range of construction-phase emissions would occur, depending on, among other factors, each project's particular accessibility, its phasing or sequencing of activity, and its fleet of construction equipment. Based on factors typical of existing renewable energy projects in the Plan Area, total construction-phase emissions from approximately 20,000 MW of installed capacity by 2040 throughout the Plan Area would be:

- 5,900 tons of NOx.
- 1,400 tons of VOCs.
- 4,100 tons of PM10.
- 800 tons of PM2.5.

Each of the four air basins would be affected by construction emissions, depending upon the locations of projects and types of technology under the No Action Alternative. Assuming that individual project sites would be developed in each ecoregion subarea (as shown in Appendix F2), construction-phase emissions can be estimated. Table IV.2-2 shows the estimated amount of the construction-phase emissions for the No Action Alternative in each air basin during potential build out.

Table IV.2-2
Estimated Construction-Phase Emissions, No Action Alternative

Air Basin	Capacity (MW)	NOx (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)
Great Basin Valleys	300	87	21	60	12
Mojave Desert	12,700	3,683	889	2,540	508
Salton Sea	6,600	1,914	462	1,320	264
San Diego	800	232	56	160	32
Total	**20,000**	**5,900**	**1,400**	**4,100**	**800**

Source: Estimated construction-phase emissions for the Plan Area equal to the capacity (MW) for each air basin (Appendix F2) multiplied by an average emission factor of total construction-phase emissions in tons per MW (from data for existing projects in the Plan Area presented in Volume III, Section III.2.8, and Appendix R1.2-1).

Dust emissions directly relate to the amount of ground disturbance during construction. Permanent ground disturbance under the No Action Alternative is an estimated 122,000 acres, not counting disturbance from transmission. These lands would become potential dust sources from increased ground disturbance during project development (see Appendix R2.2, Table R2.2-1).

State Air Quality Standards

Under the No Action Alternative, projects would be built within air basins that are state nonattainment areas for ozone and PM10; construction activities would therefore generate emissions that could contribute to existing ozone and PM10 violations. All of the air basins available for renewable energy development under the No Action Alternative would therefore experience short-term air quality impacts during construction.

In addition to contributing to existing violations of the state ambient air quality standards for ozone and PM10, construction activities would cause PM2.5 impacts in two areas. The San Bernardino County portion of the federal Southeast Desert Modified Air Quality Management Area for ozone is classified as a PM2.5 nonattainment area, as is the portion of the Plan Area within the San Diego Air Basin (see Figure III.2-8, State PM 2.5 Attainment Status, in Chapter III.2). Construction activities would generate emissions that would contribute to the existing PM2.5 violations in those areas.

Federal Air Quality Standards

The federal nonattainment areas of AQMDs and APCDs in the Plan Area are described in detail in Volume III, Section III.2.4. They are summarized in the following paragraphs.

The Great Basin Valleys Air Basin is in attainment for all pollutant standards except for those related to PM10. The Owens Valley Planning Area is a serious PM10 nonattainment area, while the Coso Junction Planning Area is a PM10 maintenance area.

The Mojave Desert Air Basin is in attainment for all pollutant standards except for those related to ozone and PM10. A large portion of San Bernardino County (including the Trona Planning Area) is a moderate PM10 nonattainment area. A portion of East Kern County in the basin is a serious PM10 nonattainment area, and the Indian Wells Planning Area (also in Kern County) is a PM10 maintenance area.

Portions of Los Angeles and San Bernardino counties in the West Mojave Desert are severe-15 1997 8-hour ozone nonattainment areas. A portion of Eastern Kern County within the basin is a marginal 2008 8-hour ozone nonattainment area, while portions of Los Angeles and San Bernardino counties are severe-15 2008 8-hour ozone nonattainment areas.

The Salton Sea Air Basin is in attainment of all pollutant standards except for those related to ozone, PM10, and PM2.5. The Coachella Valley (Riverside County) portion of the basin within the Plan Area is a serious PM10 nonattainment area, as is the Imperial Valley Planning Area in Imperial County. A portion of south-central Imperial County is nonattainment for the PM2.5 24-hour standard.

The Riverside County portion of the Salton Sea Air Basin is a severe-15 1997 8-hour ozone nonattainment area. The Imperial County portion of the Salton Sea Air Basin is a moderate 1997 8-hour ozone nonattainment area. The Riverside County portion of the Salton Sea Air Basin is a severe-15 2008 8-hour ozone nonattainment area. The Imperial County portion of the Salton Sea Air Basin is a marginal 2008 8-hour ozone nonattainment area.

The San Diego Air Basin is in attainment of all pollutant standards except for those related to ozone. The San Diego Air Basin is a marginal 2008 8-hour ozone nonattainment area.

Conclusion for Impact AQ-1

Renewable energy project construction would generate emissions that would contribute to existing ozone, PM10, and PM2.5 violations because these areas are within federal and state nonattainment areas. These nonattainment air basins would experience a short-term air quality impact from an increase in dust and vehicle and equipment exhaust emissions from renewable energy project development. These emissions could either violate air quality standards or exacerbate existing air quality violations for nonattainment and maintenance areas during the limited, short-term phases of construction.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

Project operations and maintenance activities would increase vehicle and equipment use and exhaust emissions. These activities, on unpaved surfaces across disturbed project sites and on access roads, would cause dust emissions. For some projects, operations would require the installation and use of new stationary or portable equipment. Emissions from these sources could violate or contribute to existing violations of air quality standards. Section IV.2.2.1.3 describes the types of activities and sources of emissions related to long-term operations and maintenance of projects. Examples of the stationary sources of emissions from operations include the following:

- Solar thermal projects require combustion of natural gas for auxiliary heating. Stationary boilers or combustion turbines would emit combustion by-products including hazardous or toxic air pollutants, increasing air pollutant concentrations and creating long-term impacts.
- Geothermal projects would require well venting, steam turbines, and cooling towers that may release geothermal steam containing hazardous or toxic air pollutants and aerosols and particles dissolved in the steam or cooling water, thereby increasing air pollutant concentrations and creating long-term impacts.
- Backup power generators and fire water-pumping engines would emit by-products of diesel or natural gas combustion, including hazardous or toxic air pollutants that could increase air pollutant concentrations.

All of the renewable energy technologies would require operations and maintenance activities. Routine upkeep of a project site, security patrols, employee commuting, and vegetation removal all cause dust emissions from vehicles or equipment that travel on unpaved surfaces. These activities also increase the use of portable equipment and motor vehicles that emit by-products of fuel combustion. Because these activities would occur within air basins that are in state or federal level nonattainment for ozone, PM10, and PM2.5, emissions from these operations and maintenance activities would exacerbate nonattainment conditions.

Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

Development of renewable energy projects and transmission under the No Action Alternative would result in exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and in some cases new stationary or portable sources of emissions. Hazardous or toxic air pollutants would also result from geothermal well venting, steam turbines, and cooling towers. These emissions would

cause air quality impacts during project operations since sensitive receptors could potentially be exposed to concentrated air pollutants.

The areas available for renewable energy development under the No Action Alternative surround multiple cities with residences, hospitals, and schools including: Tehachapi, California City, Lancaster, Barstow, Adelanto, Victorville, Twentynine Palms, Blythe, Calipatria, Brawley, Imperial, Holtville, El Centro, and Calexico. New emissions sources from new renewable energy projects could be close enough to these cities to expose people to high concentrations of pollutants. During the site selection and project permitting processes, adverse health impacts can be avoided by controlling emissions and providing sufficient distance between new sources of air pollution and nearby receptors. Because specific renewable energy project sites have not been identified yet, sensitive receptors could experience adverse air pollutant concentrations under the No Action Alternative.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

Development of renewable energy projects and transmission under the No Action Alternative would result in emissions that could conflict with applicable air quality plans in nonattainment areas. The air quality management plan for each nonattainment area establishes control strategies that require coordination between project developers, air permitting authorities, and other local agencies or jurisdictions. Subsequent projects developed without full implementation of the control strategies could result in a delay in the air basin achieving attainment with the ambient air quality standards. The potential to conflict with applicable air quality management plans would be limited to areas with existing violations of air quality standards.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Operation of geothermal facilities could cause odors that would be considered objectionable to people living within a mile of a geothermal project. Under the No Action Alternative, geothermal development is identified in the Imperial Borrego Valley ecoregion subarea. Because a substantial number of people live in this area, geothermal development and operations would include impacts from odors. Stationary sources within each geothermal project would be subject to local air district permitting requirements, which would establish pollution controls to remove odorous compounds. Local permitting authorities would consider the effects of objectionable odors. Although routine operations of geothermal facilities would need to include applicable odor controls, an air quality impact could still occur if operations, accidental releases, or upset conditions cause noticeable odors.

Laws and Regulations

Existing laws and regulations would reduce the impacts of renewable energy projects in the absence of the DRECP. Relevant regulations are presented in the Regulatory Setting in Volume III. Because this EIR/EIS addresses amendments to BLM's land use plans, these plans are addressed separately and are not included in this section. The requirements of relevant regulations would reduce impacts through the following mechanisms:

- The Solar Programmatic EIS (PEIS) includes numerous design features (Appendix W) that would reduce the impacts of solar energy development on BLM lands, including:
    - Measures to minimize impacts on air quality from siting design and construction (e.g., using Tier 3, Tier 4 and Tier 4i equipment, preparing a dust abatement plan, and managing unpaved roads and disturbed areas—defined in AQC2-1 in the Solar PEIS).
    - Measures to minimize impacts on air quality from operations, maintenance, reclamation, and decommissioning (e.g., monitoring and treating areas, reapplying palliatives, and ensuring compliance of all combustion sources with state emission standards—defined in AQC3-1 and AQC4-1 in the Solar PEIS).
- The Clean Air Act prohibits federal agencies from, among other things, issuing licenses or permits or approving any activity in a federal nonattainment area that do not conform to an approved SIP. Where the federal action is issuing a permit, license, or other approval for an individual nonfederal project, the federal agency must evaluate the conformity of direct and indirect emissions from construction activities on federally administered lands; the federal agency may then require the project to reduce air emissions as a condition of the decision.
- The California Clean Air Act requires that AQMDs and APCDs implement regulations that control stationary-source emissions through local district rules and permit requirements, and to also implement local air quality management plans to demonstrate how attainment would be achieved. Applicable air quality plans may include programs and control strategies to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures (e.g., demonstrating the overall effectiveness of the air quality program, reducing nonattainment pollutants or their precursors at a rate of 5% per year, or reducing population exposure to severe nonattainment pollutants according to a prescribed schedule).

- The California Air Toxics Program establishes the process for identifying and controlling toxic air contaminants, including provisions to raise public awareness of significant toxic exposures and reduce risk.
- The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588 Connelly) requires that stationary sources report the types and quantities of certain substances routinely released into the air (e.g., collect emission data, identify facilities with localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels).
- The Children's Environmental Health Protection Act, SB 25 (Chapter 731 Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. This act requires that the Air Resources Board review air quality standards from a child's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health.
- The SIP is a collection of documents that sets forth the state's strategies for achieving federal air quality standards. In California, each local air district is responsible for preparing and implementing the portions of the SIP that apply within each local jurisdiction. The Plan Area boundaries encompass areas under the jurisdiction of multiple air districts (Volume III, Figure III.2-2, State Air Districts).

Mitigation

Air quality mitigation adopted for approved projects is assumed to be similar to the types of mitigation measures that would apply in the future under the No Action Alternative. Following are the types of mitigation that would likely be implemented under the No Action Alternative.

Typical Mitigation Measures for Solar and Wind Projects

1. Air Quality Construction Mitigation Manager: The project owner shall designate and retain an on-site air quality construction mitigation manager who shall be responsible for directing and documenting compliance with mitigation measures (e.g., fugitive dust control, dust plume response requirement, and diesel-fueled engine control) for the entire project site and linear facility construction. The air quality construction mitigation manager shall have full access to all areas of construction on the project site and linear facilities and shall have the authority to stop any or all construction activities when warranted by applicable construction mitigation conditions.
2. Air Quality Construction Mitigation Plan: The project owner shall provide an Air Quality Construction Management Plan for approval that details the steps that will

be taken and the reporting requirements necessary to ensure compliance with mitigation measures for construction fugitive dust control, dust plume response requirement, and diesel-fueled engine control.

3. Construction Fugitive Dust Control: The air quality construction mitigation manager shall submit documentation in each Monthly Compliance Report that demonstrates compliance with Air Quality Construction Mitigation Plan measures for minimizing fugitive dust emission from construction activities and preventing all fugitive dust plumes that would not comply with the performance standards identified for the dust plume response requirement. The definition of stabilized surface for purposes of fugitive dust control means that fugitive dust would be controlled by using a soil binding agent or other effective means to suppress and keep it from leaving project boundaries, and also neither causing nor creating fugitive dust plumes that would leave the project site.
4. Dust Plume Response Requirement: The air quality construction mitigation manager shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to either (1) be transported off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner, or (2) extend 200 feet beyond the centerline of the construction of linear facilities, indicate that existing mitigation measures are not effective.
5. Diesel-Fueled Engine Control: The air quality construction management manager shall submit, in the Monthly Compliance Report, a table that demonstrates compliance with the Air Quality Construction Mitigation Plan measures for controlling diesel construction-related combustion emissions.
6. Obtain only dedicated on-road or off-road vehicles for mirror-washing activities and other facility maintenance activities that meet California on-road vehicle emission standards or appropriate Environmental Protection Agency/California EPA off-road engine emission standards for the latest model year available when obtained.
7. Provide a site Operations Dust Control Plan, including all applicable fugitive dust control measures to ensure that operations and maintenance activities prevent all fugitive dust plumes.
8. Provide copies of all district-issued authority-to-construct and permit-to-operate documents for the facility.
9. Submit Quarterly Operation Reports to demonstrate compliance or highlight any incidences of noncompliance.
10. Operate the cooling towers with high efficiency mist eliminators (to reduce drift to no more than 0.0005% of recirculating water flow), and determine and report water quality.

Typical Mitigation Measures for Geothermal Projects

1. Fugitive PM10 control measures shall be implemented where feasible.
2. Construction equipment emissions control measures shall be implemented at the project site during all construction activities, when feasible.
3. Geothermal steam vents shall be equipped with suitable odor control and air pollution control systems. An example is a regenerative thermal oxidizer unit and caustic scrubber system to abate combustible noncondensible gas air pollutant emissions during project operations. In addition, high-efficiency drift eliminators shall be used to abate PM10 emissions from cooling towers.
4. Geothermal facilities shall mitigate project air pollutants by purchasing emission offset credits from one or more entities prior to issuance of construction permits.
5. Geothermal facilities shall achieve synthetic minor source status by controlling project hazardous air pollutants.

IV.2.3.1.1.2 Impacts From Reserve Design in the No Action Alternative

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection of existing Legislatively and Legally Protected Areas such as wilderness areas. In addition, under the No Action Alternative, renewable energy projects would continue to be evaluated and approved with project-specific mitigation requirements.

IV.2.3.1.2 Impacts on BLM Lands of Existing BLM Land Use Plans in No Action Alternative

The No Action Alternative would result in Impacts AQ-1 through AQ-5 based on the 122,000 acres of ground disturbance, additional disturbance due to transmission, and operations activities, including activities in nonattainment areas of individual air basins within the Plan Area (see Section IV.2.3.1.1). BLM LUPA lands are within air basins in nonattainment for criteria pollutants, so existing conservation lands would be impacted by emissions from ground disturbance and other development activities. Typical mitigation measures for individual projects would reduce air quality impacts on BLM LUPA lands.

IV.2.3.1.3 Impacts of Natural Community Conservation Plan in No Action Alternative

The NCCP would apply to all lands within the Plan Area. In the absence of Plan implementation, the NCCP would not be approved, and no incidental take permits would be issued. under the NCCP. The appropriate lead agency would continue to consider projects individ-

ually. The impacts that would occur in the absence of the NCCP would be the same as those described in Section IV.2.3.1.1.1.

IV.2.3.1.4 Impacts of General Conservation Plan in No Action Alternative

As described in Appendix M, the GCP would apply to nonfederal lands in the Plan Area. In the absence of Plan implementation, the GCP would not be approved, and no incidental take permits would be issued under the GCP. The appropriate lead agency would continue to consider projects individually. The impacts that would occur in the absence of the GCP would be the same as those described in Section IV.2.3.1.1.1 but would be specific to nonfederal lands.

IV.2.3.1.5 Impacts Outside of Plan Area in No Action Alternative

IV.2.3.1.5.1 Impacts of Transmission Outside of Plan Area

Outside of the Plan Area, additional transmission lines would be needed to deliver additional electricity to load centers (areas of high demand). It is assumed that new Outside of Plan Area transmission lines would use existing transmission corridors between the Plan Area and existing substations in the more populated coastal areas of the state. Areas outside of the Plan Area through which new transmission lines might be constructed are San Diego, Los Angeles, North Palm Springs–Riverside, and Central Valley. These areas and the status of their air resources are described in Volume III, Chapter III.2, Section III.2.8.

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

Construction of new transmission lines outside of the Plan Area would result in short-term impacts in transmission rights-of-way, which would create ground disturbance. The air basins in which transmission lines would be constructed are state and federal nonattainment areas. They would therefore experience short-term impacts from ground-disturbing activities, most notably for PM10, PM2.5, and ozone.

Operational Impacts. Operation and maintenance of the new lines would require vehicle and helicopter use for periodic inspections and repairs. The use of vehicles on unpaved access roads can generate dust, but this would occur infrequently. Emissions from the equipment and motor vehicles used for routine operation and maintenance of the transmission lines, and the dust caused by crews occasionally inspecting or repairing those lines, would occur at much lower levels than during construction. The following impacts to air quality would occur during operations, but at much lower levels than during construction:

- Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

- Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

The following impacts to air quality would not occur during operations of transmission projects:

- Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.
- Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

IV.2.3.1.5.2 Impacts of Existing BLM Land Use Plans Outside of Plan Area

Under the No Action Alternative, BLM's existing BLM California Desert Conservation Area land use plan would still be implemented on applicable lands. Under the No Action Alternative, renewable energy projects would also still be developed through BLM's existing policies. Impacts on air quality resources would be of the types described in Section IV.2.2.1, with similar mitigation measures included on a case-by-case basis.

The existing land designations, such as existing protected areas, Areas of Critical Environmental Concern (ACECs), and National Scenic and Historic Trails, would continue to be managed to protect their values and resources.

IV.2.3.1.6 CEQA Significance Determination: No Action Alternative

AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation. Development of renewable energy projects and transmission under the No Action Alternative would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to an existing violation of air quality standards. These emissions would cause short-term air quality impacts during construction. Mitigation would normally be required for construction emissions (see Section IV.2.3.1.1.1 for examples of typical mitigation). This impact would be less than significant with mitigation, specifically with the typical solar and wind measures (1) through (5) and the typical geothermal measures (1) and (2), which would implement feasible control strategies for construction dust and construction equipment emissions.

AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations. Development of renewable energy and transmission projects would increase vehicle, equipment, and other activities on unpaved surfaces, and emissions from operations and maintenance activities would potentially violate or contrib-

ute to an existing violation of air quality standards. To ensure that emissions from operations would not worsen nonattainment conditions, mitigation would normally be required to control emissions from operations (see Section IV.2.3.1.1.1). This impact would be less than significant with mitigation, specifically with the typical solar and wind measures (6) through (10) and the typical geothermal measures (3) through (5), which would implement feasible control strategies for stationary sources of emissions at renewable energy facilities and for equipment used during operations and maintenance at each project site.

AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations. Development of renewable energy projects and transmission would result in new sources of emissions from operations and maintenance activities at levels that may expose sensitive receptors to adverse air pollutant concentrations under the No Action Alternative. Mitigation would normally be required to control emissions of hazardous and toxic air contaminants and provide sufficient separation between new sources of air pollution and nearby receptors (see Section IV.2.3.1.1.1). This impact would be less than significant with mitigation, specifically with the typical solar and wind measures (6) through (10) and the typical geothermal measures (3) through (5), which would implement feasible control strategies for stationary sources at renewable energy facilities and for equipment used at each project site.

AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans. Development of renewable energy projects and transmission would result in emissions from operations and maintenance activities under the No Action Alternative. Project-related emissions could conflict with applicable air quality plans established for nonattainment areas if projects do not fully implement the control strategies in those plans. Mitigation would normally be required for emissions from operations (see Section IV.2.3.1.1.1). This impact would be less than significant with mitigation, specifically with the typical solar and wind measures (6) through (10) and the typical geothermal measures (3) through (5), which would implement feasible stationary source control measures.

AQ-5: Operations would create objectionable odors affecting a substantial number of people. Development of geothermal facilities could cause objectionable odors within one mile of geothermal vents or operations. This impact would be less than significant with mitigation, specifically typical geothermal measure (3), which would implement feasible stationary source control measures.

IV.2.3.2 Preferred Alternative

IV.2.3.2.1 Plan-wide Impacts of Implementing the DRECP: Preferred Alternative

The Preferred Alternative integrates renewable energy elements and conservation elements to moderate conflicts in DFAs between biological and nonbiological resources and provide development flexibility. The DFAs are concentrated in a few locations, with some smaller DFAs throughout the Plan Area. DFAs under the Preferred Alternative total 2,024,000 acres, with 145,000 acres of permanent disturbance, primarily from solar projects.

IV.2.3.2.1.1 Plan-wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development

Impact Assessment

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

All of the Plan components, from both renewable energy technologies and transmission, would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to an existing violation of air quality standards, which would in turn be a short-term air quality impact during construction. The sources of construction dust and types of motor vehicle or off-road equipment sources would be similar at all development sites. Ground disturbance would also generate dust.

The Preferred Alternative covers the same air basins as the No Action Alternative, and state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. Aside from site-specific differences and differences in the acres of dust-generating activities, the Preferred Alternative would result in the same total Plan-wide emissions from construction-phase activities for developing approximately 20,000 MW of renewable energy installed capacity as under the No Action Alternative.

Each of the four air basins would be affected by construction emissions, depending on the geographic distribution of the development mix under the Preferred Alternative. Table IV.2-3 shows the estimated amount of construction-phase emissions for each air basin during the potential build out.

Table IV.2-3
Estimated Construction-Phase Emissions, Preferred Alternative

Air Basin	Capacity (MW)	NOx (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)
Great Basin Valleys	500	145	35	100	20
Mojave Desert	12,100	3,509	847	2,420	484
Salton Sea	7,100	2,059	497	1,420	284
San Diego	600	174	42	120	24
Total	**20,000**	**5,900**	**1,400**	**4,100**	**800**

Source: Estimated construction-phase emissions for the Plan Area equal to the capacity (MW) for each air basin (Appendix F2) multiplied by an average emission factor of total construction-phase emissions in tons per MW (from data for existing projects in the Plan Area presented in Volume III, Section III.2.8, and Appendix R1.2-1).

The nonattainment air basins with renewable energy development under the Preferred Alternative would experience a short-term air quality impact from increased dust emissions and vehicle and equipment exhaust emissions. These emissions could violate air quality standards or exacerbate existing air quality violations and nonattainment conditions during the short-term phases of construction.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

All of the Plan components from both renewable energy technologies and transmission would increase vehicle and equipment use and their associated exhaust emissions. Activities on unpaved surfaces across disturbed project sites and on access roads would also cause dust emissions. Some projects would require stationary or portable emissions sources during operations. Emissions from these sources could violate or contribute to an existing violation of air quality standards. Examples of these activities and sources are listed in the Impact AQ-2 discussion for the No Action Alternative in Section IV.2.3.1.1.1.

All of the renewable energy technologies would require some operations and maintenance activities. Routine upkeep of the site, security patrols, employee transportation, and vegetation removal all cause dust emissions from vehicles or equipment travelling on unpaved surfaces. Because these activities would occur within both state and federal nonattainment areas, emissions from these operations and maintenance activities would exacerbate nonattainment conditions.

Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

All of the Plan components from the renewable energy technologies and transmission would result in exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and, in some cases, from stationary or portable emissions sources. During the site selection and project permitting processes, adverse health impacts can be avoided by controlling emissions and providing sufficient separation between new sources of air pollution and nearby receptors. Depending on the development sites, renewable energy and transmission emissions sources could be close enough to expose sensitive receptors to adverse air pollutant concentrations under the Preferred Alternative.

The areas available for renewable energy development under the Preferred Alternative surround multiple cities with residences, hospitals, and schools including: Tehachapi, California City, Lancaster, Barstow, Adelanto, Victorville, Blythe, Calipatria, Brawley, Imperial, Holtville, El Centro, and Calexico. Because the specific renewable energy project sites are not yet known, sensitive receptors could experience adverse air pollutant concentrations under the Preferred Alternative.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

All of the Plan components from the renewable energy technologies and transmission would result in project-related emissions that could conflict with applicable air quality plans in nonattainment areas if projects do not fully implement control strategies in those plans.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Geothermal technology may create objectionable odors. Under the Preferred Alternative, geothermal technology is planned within DFAs in either the Owens River Valley or the Imperial Borrego Valley ecoregion subareas. Because a substantial number of people live in these areas, geothermal development could create air quality impacts for people living within one mile of the odor source.

Local permitting authorities would consider the effects of objectionable odors. Although routine operations of geothermal facilities would include required odor controls, an air quality impact would still occur if operations, accidental releases, or upset conditions caused noticeable odors.

Impacts in 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.

Future Assessment Areas (FAAs). Lands within FAAs are neither reserve lands nor DFAs; they are simply areas that are deferred for future assessment. The future assessment will determine their suitability for renewable energy development or for ecological conservation. If renewable energy development occurs on FAA lands, a Land Use Plan Amendment would not be required. FAAs for each alternative are shown in Table IV.1-2 and Figure II.3-1 in Volume II. The FAAs represent areas where renewable energy development or inclusion to the reserve design could be implemented through an amendment to the DRECP, but additional assessment would be needed.

Because most of the FAAs are presented as undesignated areas in the action alternatives, there would be no difference between the FAAs in the Preferred Alternative except that renewable development in an FAA would not require a BLM Land Use Plan Amendment so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of the FAAs would impact air quality, as it would within DFAs.

Special Analysis Areas. There are two areas defined as SAAs, representing areas subject to ongoing analysis. These areas (located in the Silurian Valley and just west of U.S. Route 395 [U.S. 395] in Kern County) have high value for renewable energy development, and also high value for ecological and cultural conservation, and recreation. SAA lands are expected to be designated in the DRECP Final EIR/EIS as either DFAs or included in the Reserve Design/Conservation Designation.

DRECP Variance Lands. DRECP Variance Lands represent the BLM Solar PEIS Variance Lands screened for the DRECP and based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. However, development of renewable energy on Variance Lands would not require a BLM Land Use Plan Amendment so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of the DRECP Variance Lands would impact air quality as it would within DFAs.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates Conservation and Man-

agement Actions (CMAs) for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The CMAs that apply to air resources are as follows:

Air Resources CMAs for the BLM Land in the Entire Plan Area

All project authorizations within the DRECP must meet the following requirements:

- Applicable National Ambient Air Quality Standards (Section 109).
- State Implementation Plan (SIP) (Section 110).
- Control of pollution from federal facilities (Section 118) including nonpoint source.
- Prevention of significant deterioration, including visibility impacts to mandatory federal Class I areas (Section 160 et seq.).
- Conformity analyses and determinations (Section 176[c]).
- Application of best management practices (BMPs) on a case-by-case basis.
- Applicable local air quality management jurisdictions (e.g., Rule 403 South Coast Air Quality Management District).
- Because project authorizations are a federal undertaking, air quality standards for fugitive dust should exceed local standards and should be applied continuously seven days a week.
- Documentation for each project will require a detailed discussion and analysis of ambient air quality conditions (baseline or existing), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the proposed project (including cumulative and indirect impacts). This content is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. The discussion shall include a description and estimate of air emissions from potential construction and maintenance activities, and proposed mitigation measures to minimize net PM10 emissions. The proponent shall specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. A Construction Emissions Mitigation Plan shall be developed.
- Fugitive dust is the number one source of PM10 pollution in the Mojave and Sonoran Deserts. The proponent must model the sources of PM10 that occur prior

to construction from the project area and show their timing, duration, and transport on and off site of each source. Modeling shall also identify how the generation and movement of PM10 will change during and after construction of the project under all alternatives.

- A fugitive dust control plan will be developed.

The following biological resource CMA would have a beneficial effect on air quality impacts:

- AM-PW-6 (partial): The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife predators.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain air quality impacts. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.2.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce the adverse impacts from the Preferred Alternative. The recommended mitigation measures specify more stringent controls and would achieve a greater level of emissions reductions than implementation of the CMAs.

Mitigation Measures for Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation

AQ-1a **Control Fugitive Dust.** Prepare and comply with a dust abatement plan that addresses fugitive dust emissions during project construction and operations, in cooperation with the local air quality management district. Include provisions for monitoring fugitive dust in the abatement plan. Incorporate the following practices in the plan where applicable:

a) Control dust along main access roads through the facility to the power block by either paving or using soil binders or other methods that provide a level of control similar to paving. Alternatives include using crushed rock (gravel or similar material with fines removed) as the top

layer. Complete road construction before beginning construction in the main power block area. Similarly treat operations materials (such as chemicals and replacement parts) and delivery areas before taking initial deliveries.

b) Stabilize unpaved construction roads and unpaved operational site roads (as they are being constructed) with a nontoxic stabilizer or soil weighting agent that can be determined to be as efficient or more efficient for fugitive dust control as California Air Resources Board-approved stabilizers, will not result in loss of vegetation, and will not increase other environmental impacts. During grading, use water as necessary on disturbed areas in construction sites to control visible plumes. Stabilize disturbed soils (after active construction activities are completed) with a nontoxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method. Reduce or eliminate the frequency of watering during periods of precipitation.

c) Vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. If unpaved roads are not stabilized, ensure that vehicles maintain speeds of less than 11 miles per hour on unpaved areas on construction sites.

d) Post visible speed limit signs at construction site entrances.

e) Inspect and wash construction-equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways.

f) Provide gravel ramps of at least 20 feet in length at tire washing and cleaning stations.

g) Use gravel on construction site unpaved exits, or use effective alternatives to treat and prevent track-out to public roadways.

h) Ensure construction vehicles enter construction sites through treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies.

i) Use sandbags or equivalent effective measures for preventing runoff to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project.

j) Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction stag-

ing areas at least twice daily (or less during periods of precipitation) on days when construction occurs, to prevent dirt and debris accumulation. Sweep when dirt or runoff from construction site activities is visible on public paved roadways.

k) Cover or treat with appropriate dust suppressant compounds soil storage piles and disturbed areas that remain inactive for longer than 10 days.

l) Provide vehicles (used to transport solid bulk material on public roadways and that could potentially cause visible emissions) with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard.

m) Use wind erosion control techniques (e.g., windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock-pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.

AQ-1b **Use Low-Emission Engines.** During construction and operations, equipment powered by diesel engines with a rating of 50 horsepower or higher shall meet the Tier 3, Tier 4 or Tier 4i California Emissions Standards for Off-Road Compression-Ignition Engines, as specified in the California Code of Regulations, Title 13, Section 2423(b)(1). If a Tier 3, Tier 4 or Tier 4i engine is not available for off-road equipment greater than 100 horsepower, use a Tier 2 engine or an engine equipped with retrofit controls to reduce exhaust emissions of NOx and diesel particulate matter to no more than Tier 2 levels. Regulatory agencies may determine that use of such devices is not practical when:

a) There is no available retrofit control device verified by either the California Air Resources Board or the Environmental Protection Agency to control engines to Tier 2 equivalent emission levels and retrofitted or Tier 1 engines to the highest level of available control technology.

b) The construction equipment is intended to be on site for five days or fewer.

c) It can be demonstrated there is a good faith effort to comply with the recommendation and that compliance is not practical.

AQ-1c **Use electric-powered equipment.** Use electricity to power vehicles and equipment, and use electric vehicles or vehicles fueled by biodiesel or alternative fuels with the best available emissions controls technology during

construction and operation to reduce the project's criteria and greenhouse gas pollutant emissions.

AQ-1d **Obtain emission offset credits.** Emissions from construction activities on federally administered lands in federal nonattainment areas shall be mitigated to levels below applicable or de minimis levels in the general conformity rule (40 CFR 93.153) through the use of emission offset credits or by providing funding to local air districts to sponsor emission reduction projects and off-site mitigation.

Mitigation Measures for Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations

AQ-2a **Use best available emission controls.** For all new stationary emission sources, use best available emissions controls.

AQ-2b **Obtain emission offset credits for operational emissions.** Emission sources due to project operations shall be mitigated through the use of emission offset credits or by providing funding to local air districts to sponsor emission reduction projects and off-site mitigation.

See also AQ-1a, AQ-1b, AQ-1c, and AQ-1d for Impact AQ-1.

Mitigation Measures for Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations

AQ-3a **Avoid locations near sensitive land uses.** New stationary air pollution point sources such as, but not limited to, combustion sources, emergency-use engines, geothermal wells or steam vents, and cooling towers shall be located away from residential areas and other air quality–sensitive land uses.

See also Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d for Impact AQ-1, and Mitigation Measure AQ-2a and AQ-2b, presented for ImpactAQ-2.

Mitigation Measures for Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

See also Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d for Impact AQ-1; Mitigation Measures AQ-2a and AQ-2b for Impact AQ-2; and Mitigation Measure AQ-3a for Impact AQ-3.

Mitigation Measures for Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Mitigation for Impact AQ-5 would be achieved through implementation of the mitigation measures for Impact AQ-3 and Mitigation Measure AQ-3a.

IV.2.3.2.1.2 Impacts of the Reserve Design

The Preferred Alternative would provide more than 7 million additional acres within the Plan Area with protective land designations. Establishing lands with protective designations would restrict development and the potential for air quality impacts.

IV.2.3.2.2 Impacts of DRECP LUPA on BLM Land: Preferred Alternative

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.2.3.2.2.1 Impacts From Renewable Energy and Transmission Development on BLM Land

Streamlining renewable energy development on BLM lands within the DFAs would not change expected Impacts AQ-1 through AQ-5 from ground disturbance and operations activities, including activities in nonattainment areas of individual air basins within the Plan Area (see Section IV.2.3.1.1). There are 367,000 acres of DFAs on BLM lands.

IV.2.3.2.2.2 Impacts of Changes to BLM Land Designations

Because the BLM LUPA land designations protect ecological, historical, cultural, scenic, scientific, and recreational resources and values, the creation of air quality impacts from renewable energy projects would likely be limited. While other land uses within these areas are allowed, they must be compatible with the resources and values that the land designation is intended to protect. Impacts to air quality are not likely from changes to BLM land designations.

IV.2.3.2.3 Impacts of Natural Community Conservation Plan: Preferred Alternative

The analysis of Covered Activities under the NCCP is equivalent to the Plan-wide analysis of the interagency alternatives. Reserve design features and other conservation actions under the NCCP represent more detailed categories of the reserve design under the interagency Plan-wide alternatives. These NCCP differences in reserve design features do not affect nonbiological resources analyzed in this document, and the analysis of reserve design and

CMAs under the NCCP is therefore equivalent to the Plan-wide analysis of the interagency alternatives, as described in Section IV.2.3.2.1.

IV.2.3.2.4 Impacts of General Conservation Plan: Preferred Alternative

The impacts of the GCP for the Preferred Alternative would be similar to those defined in Section IV.2.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

IV.2.3.2.5 Impacts Outside of Plan Area

IV.2.3.2.5.1 Impacts of Transmission Outside of Plan Area

The impacts of transmission outside the Plan Area on air quality would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.2.3.1.5.1.

IV.2.3.2.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Under the proposed BLM LUPA, the only changes outside the Plan Area would be the designation of National Landscape Conservation System (NLCS) lands, ACECs, National Scenic and Historic Trails management corridors, Visual Resource Management (VRM) classes, and new land allocations to replace multiple use classes on CDCA lands. These changes emphasize habitat connectivity and cultural and botanical resource locations. BLM LUPA decisions outside the Plan Area would not create air quality impacts.

IV.2.3.2.6 CEQA Significance Determination for the Preferred Alternative

AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation. During construction, renewable energy and transmission projects under the Preferred Alternative would increase dust and exhaust emissions from construction equipment and vehicles; this could violate or contribute to an existing violation of air quality standards. Impact AQ-1 would be less than significant with application of Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d described in Section IV.2.3.2.1.1.

AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations. Renewable energy projects and transmission under the Preferred Alternative would increase vehicle and equipment activity and activities on unpaved surfaces, and emissions from operations and maintenance activities could violate or contribute to existing violations of air quality standards. To ensure that emissions from operations would not worsen nonattainment conditions, mitigation would be necessary to

reduce emissions. Impact AQ-2 would be less than significant with application of Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, and AQ-2b described in Section IV.2.3.2.1.1).

AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations. Development of renewable energy projects and transmission would generate new sources of emissions from operations and maintenance activities at levels that may expose sensitive receptors to adverse air pollutant concentrations. Mitigation would be necessary to control emissions of hazardous and toxic air contaminants and provide sufficient separation between new sources of air pollution and nearby receptors. Impact AQ-3 would be less than significant with application of Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a described in Section IV.2.3.2.1.1.

AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans. Development of renewable energy projects and transmission would generate emissions that could conflict with applicable air quality plans established for non-attainment areas if projects do not fully implement those plans. Mitigation would be necessary to avoid significant impacts. Impact AQ-4 would be less than significant with application of Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a described in Section IV.2.3.2.1.1).

AQ-5: Operations would create objectionable odors affecting a substantial number of people. Geothermal operations may result in objectionable odors for people within one mile of geothermal vents or other geothermal system sources. Under the Preferred Alternative, geothermal technology is planned within DFAs located in either the Owens River Valley or the Imperial Borrego Valley ecoregion subareas. Because a substantial number of people live in these areas, there could be potentially significant impacts from odors within these ecoregion subareas. Mitigation Measure AQ 3a would reduce Impact AQ-5 to a less than significant level.

IV.2.3.2.7 Comparison of the Preferred Alternative With No Action Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of the Preferred Alternative with the No Action Alternative.

IV.2.3.2.7.1 Preferred Alternative Compared With No Action Alternative for Plan-wide DRECP

The Preferred Alternative results in long-term impacts from construction dust from ground disturbance and exhaust emissions from construction equipment and vehicles.

The Preferred Alternative would result in 145,000 acres of permanent disturbance, 20,000 more acres than the No Action Alternative. The acres of transmission remain similar.

The Preferred Alternative covers the same air basins as the No Action Alternative, and the state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. The air basins with renewable energy development under the Preferred Alternative that are within state and federal nonattainment areas would experience similar impacts from development activities. However, the Preferred Alternative would shift development activity from eastern Kern County to the West Mojave Desert of San Bernardino County, which is an area with more severe air quality violations. While the No Action Alternative would be subject to typical mitigation measures, the additional mitigation measures identified for the Preferred Alternative would provide greater air quality impact reductions.

The Preferred Alternative would not have project development near Twentynine Palms, so sensitive receptors would not be exposed to substantial pollutant concentrations in this location.

The Preferred Alternative would create more emissions from ground disturbance and other development activities in the Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes ecoregion subareas than under the No Action Alternative (see Appendix R2.2, Table R2.2-1 and Table R2.2-2).

IV.2.3.2.7.2 Preferred Alternative Compared With No Action Alternative for the BLM Land Use Plan Amendment

The BLM LUPA would not affect existing BLM guidance on air quality but would change the pattern of development. Under the Preferred Action Alternative, the BLM LUPA would designate 367,000 acres of DFAs. Compared to the No Action Alternative, where development could occur on 2,810,000 acres, less development may take place on BLM lands under the Preferred Alternative, and thus result in fewer air emissions on BLM land.

IV.2.3.2.7.3 Preferred Alternative Compared With No Action Alternative for NCCP

The impacts of the NCCP for the Preferred Alternative are the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis. As a result, the comparison of the Preferred Alternative with the No Action Alternative for the NCCP is the same as described for the Plan-wide DRECP.

IV.2.3.2.7.4 Preferred Alternative Compared With No Action Alternative for the GCP

The impacts under the No Action Alternative and the Preferred Alternative for the GCP would be similar to the Plan-wide analysis, so there are no expected changes.

IV.2.3.3 Alternative 1

IV.2.3.3.1 Plan-wide Impacts of Implementing the DRECP: Alternative 1

The primary driver of Alternative 1 is confining renewable energy development to low-conflict disturbed lands, thereby providing the lowest conflicts between biological and nonbiological resources. Development flexibility would be limited as a result. The DFAs under Alternative 1 total 1,070,000 acres, compared with 2,024,000 acres under the Preferred Alternative. There would be 148,000 acres of permanent disturbance from renewable energy development.

IV.2.3.3.1.1 Plan-wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development

Impact Assessment

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

All of the Plan components from the renewable energy technologies and transmission would increase dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to existing violations of air quality standards, which would be an air quality impact under Alternative 1. The sources of construction dust and the types of motor vehicle or off-road equipment sources would be similar at all development sites. Dust would also be generated by ground disturbance.

Alternative 1 covers the same air basins as the No Action Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. Aside from site-specific differences and differences in the acres of dust-generating activities, this alternative would result in the same total Plan-wide emissions from construction-phase activities for developing approximately 20,000 MW of installed capacity as under the No Action Alternative and the Preferred Alternative.

Each of the four air basins would be affected by construction emissions, depending on the geographic distribution of the development mix under Alternative 1. Table IV.2-4 shows estimated construction-phase emissions for each air basin during the potential build out.

Table IV.2-4
Estimated Construction-Phase Emissions, Alternative 1

Air Basin	Capacity (MW)	NOx (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)
Great Basin Valleys	800	232	56	160	32
Mojave Desert	10,400	3,016	728	2,080	416
Salton Sea	8,300	2,407	581	1,660	332
San Diego	800	232	56	160	32
Total	**20,000**	**5,900**	**1,400**	**4,100**	**800**

Source: Estimated construction-phase emissions for the Plan Area equal to the capacity (MW) for each air basin (Appendix F2) multiplied by an average emission factor of total construction-phase emissions in tons per MW (from data for existing projects in the Plan Area presented in Volume III, Section III.2.8, and Appendix R1.2-1).

The nonattainment air basins with renewable energy development under Alternative 1 would experience short-term air quality impacts from increases in dust emissions and vehicle and equipment exhaust emissions from project development. These emissions could violate air quality standards or exacerbate existing air quality violations and nonattainment conditions during the short-term phases of construction.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

All of the Plan components from the renewable energy technologies and transmission would include operations and maintenance activities that would increase vehicle and equipment emissions, dust emissions, and, for some projects, new stationary or portable emissions sources. Emissions from these sources could violate or contribute to an existing violation of air quality standards. Examples of these activities and sources are listed in the Impact AQ-2 discussion for the No Action Alternative in Section IV.2.3.1.1.1.

All of the renewable energy technologies would require some operations and maintenance activities that would cause new sources of dust emissions and other emissions from fossil-fueled equipment. Because these activities would be within both state and federal non-attainment areas, emissions from the operations and maintenance activities would exacerbate nonattainment conditions.

Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

All of the Plan components from renewable energy technologies and transmission would result in exhaust emissions from vehicles and equipment, dust emissions from activities on unpaved surfaces, and, in some cases, new stationary or portable sources of emissions.

Depending on the development sites, new emissions sources could be close enough to sensitive receptors to expose them to adverse air pollutant concentrations under Alternative 1.

The areas available for renewable energy development under Alternative 1 surround multiple cities with residences, hospitals, and schools including: Tehachapi, Lancaster, Adelanto, Victorville, Blythe, Calipatria, and Calexico. Because the specific renewable energy project sites are not yet known, sensitive receptors could experience adverse air pollutant concentrations under Alternative 1.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

All of the Plan components from renewable energy technologies and transmission would result in project-related emissions that could conflict with applicable air quality plans in nonattainment areas if projects do not fully implement control strategies in those plans.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Geothermal technology may cause objectionable odors for people within one mile of geothermal vents or other geothermal system sources. Under Alternative 1, geothermal technology is planned within DFAs in the Imperial Borrego Valley, Mojave and Silurian Valley, or West Mojave and Eastern Slopes ecoregion subarea. Because a substantial number of people live in these areas, geothermal development could create an air quality impact for people near the odor sources. Although routine operations of geothermal facilities would need to include applicable odor controls, an air quality impact would still occur if operations, accidental releases, or upset conditions would cause noticeable odors.

Impacts in Study Area Lands

Future Assessment Areas (FAAs). FAAs do not apply to Alternative 1.

Special Analysis Areas. Designating the SAAs as conservation would have no impact on this resource. Impacts would be the same as those explained for the Plan-wide reserve design in Section IV.2.3.2.1.2.

DRECP Variance Lands. DRECP Variance Lands represent the BLM Solar PEIS Variance Lands screened for the DRECP and based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. However, development of renewable energy on Variance Lands would not require a BLM LUPA, so the environmental review process would be somewhat simpler than if the location were

left undesignated. Development of the DRECP Variance Lands would impact air quality as it would within DFAs.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 1 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands (see Section IV.2.3.2.1.1 for a list of the CMAs).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.2.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce the adverse impacts from Alternative 1.

The impacts for Alternative 1 are the same as the Preferred Alternative; therefore the mitigation is also the same (see Section IV.2.3.2.1.1 for the complete list of mitigation measures).

IV.2.3.3.1.2 Impacts From Reserve Design

Alternative 1 would provide more than 7 million additional acres within the Plan Area with protective land designations. Establishing lands with protective designations would restrict development and the potential for air quality impacts.

IV.2.3.3.2 Impacts of DRECP LUPA on BLM Land: Alternative 1

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.2.3.3.2.1 Impacts From Renewable Energy and Transmission Development on BLM Land

Streamlining renewable energy development on BLM lands within the DFAs would not change expected Impacts AQ-1 through AQ-5 from ground disturbance and operations activities, including activities in nonattainment areas of individual air basins within the Plan Area (see Section IV.2.3.1.1). However, development on BLM lands (and associated emissions) would be reduced as there are only 82,000 acres of DFA land in Alternative 1.

IV.2.3.3.2.2 Impacts of Changes to BLM Land Designations

Because the BLM LUPA land designations protect ecological, historical, cultural, scenic, scientific, and recreational resources and values, the creation of air quality impacts would likely be limited. Land uses within these areas are allowed if they are compatible with the resources and values that the land designation is intended to protect. Impacts to air quality are not likely from changes to BLM land designations.

IV.2.3.3.3 Impacts of Natural Community Conservation Plan: Alternative 1

The impacts of the NCCP for Alternative 1 would be the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis.

IV.2.3.3.4 Impacts of General Conservation Plan: Alternative 1

The impacts of the GCP for Alternative 1 would be similar to those defined in Section IV.2.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

IV.2.3.3.5 Impacts Outside of Plan Area

IV.2.3.3.5.1 Impacts of Transmission Outside of Plan Area

The impacts of Outside of Plan Area transmission on air quality would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.2.3.1.5.1.

IV.2.3.3.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Under the proposed BLM LUPA, the only changes outside the Plan Area would be the designation of NLCS lands, ACECs, National Scenic and Historic Trails management corridors, VRM classes, and new land allocations to replace multiple use classes on CDCA lands. These changes emphasize habitat connectivity and cultural botanical resource locations. BLM LUPA decisions outside the Plan Area would not create air quality impacts.

IV.2.3.3.6 CEQA Significance Determination for Alternative 1

AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation. Renewable energy projects and transmission would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to existing violations of air quality standards. These emissions would cause short-term air quality impacts during construction. By implementing feasible control strategies for construction dust and construction equipment emissions, Impact AQ-1 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d, in Section IV.2.3.2.1.1).

AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations. Renewable energy and transmission projects would increase vehicle and equipment activity on unpaved surfaces, and emissions from operations and maintenance activities could violate or contribute to existing violations of air quality standards. To ensure that emissions from operations would not worsen non-attainment conditions, mitigation would be necessary to control emissions sources from operations and maintenance activities under Alternative 1. Impact AQ-2 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, and AQ-2b in Section IV.2.3.2.1.1).

AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations. Development of renewable energy projects and transmission would cause new sources of emissions from operations and maintenance activities at levels, which may expose sensitive receptors to adverse air pollutant concentrations under

Alternative 1. Mitigation would be necessary to control emissions of hazardous and toxic air contaminants and to provide sufficient separation between new sources of air pollution and nearby receptors. Impact AQ-3 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans. Development of the renewable energy projects and transmission would result in emissions that could conflict with local air quality plans established for nonattainment areas. Mitigation would be necessary to ensure implementation of feasible construction-phase and stationary source control measures in those plans. Impact AQ-4 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-5: Operations would create objectionable odors affecting a substantial number of people. Geothermal operations may result in objectionable odors experienced by people within one mile of geothermal vents or other geothermal system sources. Impact AQ-5 would be less than significant with mitigation (see Mitigation Measure AQ-3a in Section IV.2.3.2.1.1).

IV.2.3.3.7 Comparison of Alternative 1 With Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 1 with the Preferred Alternative.

IV.2.3.3.7.1 Alternative 1 Compared With Preferred Alternative for Plan-wide DRECP

Alternative 1 results in long-term impacts from construction dust from ground disturbance and exhaust emissions from construction equipment and vehicles.

Compared with the Preferred Alternative, Alternative 1 would result in 3,000 more acres of ground disturbance. Alternative 1 covers the same air basins as the Preferred Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. The air basins with renewable energy development under Alternative 1 that are within state and federal nonattainment areas would experience similar impacts from development activities. Mitigation measures would be the same for Alternative 1 and the Preferred Alternative.

Alternative 1 would not have development activities near California City, Barstow, Brawley, Imperial, El Centro, or Holtville, whereas the Preferred Alternative could do so; therefore

sensitive receptors would not be exposed to substantial pollutant concentrations under Alternative 1.

Alternative 1 would create more emissions from ground disturbance and other development activities in the Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains ecoregion subareas than under the Preferred Alternative (see Appendix R2.2, Table R2.2-2 and R2.2-3).

IV.2.3.3.7.2 Alternative 1 Compared With Preferred Alternative for the BLM Land Use Plan Amendment

The BLM LUPA would not affect existing BLM guidance on air quality but would change the pattern of development. Under Alternative 1, the BLM LUPA would designate 81,000 acres of DFAs. Compared to the Preferred Alternative, which would designate 367,000 acres of DFAs, less development could take place on BLM land under Alternative 1, and thus result in fewer air emissions on BLM land.

IV.2.3.3.7.3 Alternative 1 Compared With Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 1 are the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 1 with the Preferred Alternative for the NCCP is the same as described for the Plan-wide DRECP.

IV.2.3.3.7.4 Alternative 1 Compared With Preferred Alternative for the GCP

The impacts under Alternative 1 and the Preferred Alternative for the GCP would be similar to the Plan-wide analysis, and there are no expected changes.

IV.2.3.4 Alternative 2

IV.2.3.4.1 Plan-wide Impacts of Implementing the DRECP: Alternative 2

Alternative 2 has the common goal with other alternatives of confining renewable energy development to low-conflict disturbed lands, thereby providing the lowest conflicts between biological and nonbiological resources. The DFAs under Alternative 2 are geographically dispersed throughout the Plan Area. The DFAs under Alternative 2 total 2,473,000 acres, compared with 2,024,000 acres under the Preferred Alternative. Alternative 2 results in the permanent disturbance of 134,000 acres.

IV.2.3.4.1.1 Plan-wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development

Impact Assessment

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

All of the Plan components from renewable energy technologies and transmission would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to existing violations of air quality standards, which would in turn be air quality impacts under Alternative 2. The sources of construction dust and types of motor vehicle or off-road equipment sources would be similar at all development sites. Ground disturbance would also generate dust.

Alternative 2 covers the same air basins as the No Action Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. Aside from site-specific differences and differences in the acres of dust-generating activities, this alternative would result in the same total Plan-wide emissions from construction-phase activities for developing approximately 20,000 MW of renewable energy installed capacity as under the No Action Alternative and the Preferred Alternative.

Each of the four air basins would be affected by construction emissions, depending on the geographic distribution of the development mix under Alternative 2. Table IV.2-5 shows the estimated construction-phase emissions for each air basin during the potential build out.

Table IV.2-5
Estimated Construction-Phase Emissions, Alternative 2

Air Basin	Capacity (MW)	NOx (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)
Great Basin Valleys	800	232	56	160	32
Mojave Desert	11,700	3,393	819	2,340	468
Salton Sea	7,400	2,146	518	1,480	296
San Diego	500	145	35	100	20
Total	**20,000**	**5,900**	**1,400**	**4,100**	**800**

Source: Estimated construction-phase emissions for the Plan Area equal to the capacity (MW) for each air basin (Appendix F2) multiplied by an average emission factor of total construction-phase emissions in tons per MW (from data for existing projects in the Plan Area presented in Volume III, Section III.2.8, and Appendix R1.2-1).

The nonattainment air basins with renewable energy development under Alternative 2 would experience short-term air quality impacts from dust emissions and vehicle and equipment exhaust emissions from project development. These emissions could violate air quality

standards or exacerbate existing air quality violations and nonattainment conditions during the short-term phases of construction.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

All of the Plan components from renewable energy operations and maintenance activities would increase vehicle and equipment use and their associated exhaust emissions, dust emissions, and, for some projects, new stationary or portable emissions sources. Emissions from these sources could violate or contribute to existing violations of air quality standards. Examples of these activities and sources are listed in the Impact AQ-2 discussion for the No Action Alternative in Section IV.2.3.1.1.1.

All of the renewable energy technologies would require some operations and maintenance activities, which would in turn result in new sources of dust emissions and emissions from new fossil-fueled equipment. Because these activities would occur within both state and federal nonattainment areas, emissions from operations and maintenance activities would exacerbate nonattainment conditions.

Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

All of the Plan components from renewable energy technologies and transmission would generate exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and, in some cases, new stationary or portable sources of emissions. Depending on the development sites, new emissions sources could be close enough to sensitive receptors to expose them to adverse air pollutant concentrations under Alternative 2.

The areas available for renewable energy development under Alternative 2 surround multiple cities with residences, hospitals, and schools including: Tehachapi, California City, Lancaster, Adelanto, Victorville, Barstow, Blythe, Calipatria, Brawley, Imperial, El Centro, Holtville, and Calexico. Because specific renewable energy project sites are not yet known, sensitive receptors could experience adverse air pollutant concentrations under Alternative 2.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

All of the Plan components from the renewable energy technologies and transmission would result in project-related emissions that could conflict with local air quality plans in nonattainment areas if projects do not fully implement the control strategies in those plans.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Geothermal technology may cause objectionable odors. Under Alternative 2, geothermal technology is planned within DFAs in the Owens River Valley, Mojave and Silurian Valley, or Imperial Borrego Valley ecoregion subareas. Because a substantial number of people live in these areas, geothermal development could create an air quality impact if people reside less than one mile from the odor sources. Although routine operations of geothermal facilities would need to include applicable odor controls, an air quality impact would occur if operations, accidental releases, or upset conditions would cause noticeable odors.

Impacts in 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.

Future Assessment Areas (FAAs). Lands within FAAs are neither reserve lands nor DFAs; they are simply areas that are deferred for future assessment. The future assessment will determine their suitability for renewable energy development or for ecological conservation. If renewable energy development occurs on FAA lands, a Land Use Plan Amendment would not be required. FAAs for each alternative are shown in Table IV.1-2 and Figure II.5-1 for Alternative 2 in Volume II. The FAAs represent areas where renewable energy development or inclusion to the reserve design could be implemented through an amendment to the DRECP, but additional assessment would be needed.

Because most of the FAAs are presented as undesignated areas in the action alternatives, there would be no difference between the FAAs in the Preferred Alternative except that renewable development in an FAA would not require a BLM Land Use Plan Amendment so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of the FAAs would impact air quality, as it would within DFAs.

Special Analysis Areas. Designating the SAAs as development would result in impacts similar to those identified for DFAs for Plan-wide impacts.

DRECP Variance Lands. DRECP Variance Lands represent the BLM Solar PEIS Variance Lands screened for the DRECP and based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. However, development of renewable energy on Variance Lands would not require a BLM LUPA, so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of DRECP Variance Lands would impact air quality, as it would within DFAs.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 2 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands (see Section IV.2.3.2.1.1 for a list of the CMAs).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.2.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce adverse impacts from Alternative 2.

The impacts for Alternative 2 are the same as for the Preferred Alternative, so the mitigation is also the same (see Section IV.2.3.2.1.1 for the complete list of mitigation measures).

IV.2.3.4.1.2 Impacts From Reserve Design

Alternative 2 would provide more than 7 million additional acres within the Plan Area with protective land designations. Establishing lands with protective designations would restrict development and the potential for air quality impacts.

IV.2.3.4.2 Impacts of DRECP LUPA on BLM Land: Alternative 2

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.2.3.4.2.1 Impacts From Renewable Energy and Transmission Development on BLM Land

Streamlining renewable energy development on BLM lands within the DFAs would not change the expected Impacts AQ-1 through AQ-5 from ground disturbance and operations activities, including activities in the nonattainment areas of individual air basins within the Plan Area (see Section IV.2.3.1.1). However, development on BLM lands (and associated emissions) would increase as there are 718,000 acres of DFA land in Alternative 2.

IV.2.3.4.2.2 Impacts of Changes to BLM Land Designations

Because the BLM LUPA land designations protect ecological, historical, cultural, scenic, scientific, and recreational resources and values, the creation of air quality impacts would likely be limited. Land uses within these areas are allowed if they are compatible with the resources and values that the land designation is intended to protect. Impacts to air quality are not likely from changes to BLM land designations.

IV.2.3.4.3 Impacts of Natural Community Conservation Plan: Alternative 2

The impacts of the NCCP for Alternative 2 would be the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis.

IV.2.3.4.4 Impacts of General Conservation Plan: Alternative 2

The impacts of the GCP for Alternative 2 would be similar to those defined in Section IV.2.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

IV.2.3.4.5 Impacts Outside of Plan Area

IV.2.3.4.5.1 Impacts of Transmission Outside of Plan Area

The impacts of transmission outside of the Plan Area on air quality would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.2.3.1.5.1.

IV.2.3.4.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Under the proposed BLM LUPA, the only changes outside the Plan Area would be the designation of NLCS lands, ACECs, National Scenic and Historic Trails management corridors, VRM classes, and new land allocations to replace multiple use classes on CDCA lands. These changes emphasize habitat connectivity and cultural and botanical resource locations. BLM LUPA decisions outside the Plan Area would not create air quality impacts.

IV.2.3.4.6 CEQA Significance Determination for Alternative 2

AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation. Renewable energy projects and transmission would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to existing violations of air quality standards. These emissions would cause short-term air quality impacts during construction. Impact AQ-1 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d, in Section IV.2.3.2.1.1).

AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations. Renewable energy and transmission projects would increase vehicle and equipment activity and activities on unpaved surfaces, and emissions from operations and maintenance activities could violate or contribute to existing violations of air quality standards. To ensure that emissions from operations would not worsen nonattainment conditions, mitigation would be necessary to control emissions from operations and maintenance activities under Alternative 2. Impact AQ-2 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, and AQ-2b in Section IV.2.3.2.1.1).

AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations. Development of the renewable energy projects and transmission would result in new sources of emissions from operations and maintenance activities at levels that may expose sensitive receptors to adverse air pollutant concentrations under Alternative 2. Mitigation would be required to control emissions of hazardous and toxic air contaminants and to provide sufficient separation between new sources of air pollution and nearby receptors. Impact AQ-3 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans. Development of renewable energy and transmission projects could conflict

with applicable local air quality plans established for nonattainment areas. Mitigation would be necessary to ensure implementation of feasible construction-phase and stationary-source control measures in those plans. Impact AQ-4 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-5: Operations would create objectionable odors affecting a substantial number of people. Geothermal operations may cause objectionable odors for people within one mile of geothermal vents or other geothermal system sources. Impact AQ-5 would be less than significant with mitigation (see Mitigation Measure AQ-3a in Section IV.2.3.2.1.1).

IV.2.3.4.7 Comparison of Alternative 2 With Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 2 with the Preferred Alternative.

IV.2.3.4.7.1 Alternative 2 Compared With Preferred Alternative for Plan-wide DRECP

Alternative 2 results in long-term impacts from construction dust from ground disturbance and exhaust emissions from equipment and vehicles. Compared with the Preferred Alternative, Alternative 2 would result in 14,000 fewer acres of disturbance.

Alternative 2 covers the same air basins as the Preferred Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. Projects in air basins under Alternative 2 that are within state and federal nonattainment areas would experience similar impacts from development activities. The mitigation measures would be the same for Alternative 2 and the Preferred Alternative.

Alternative 2 would not have development activities near Twentynine Palms, similar to the Preferred Alternative, so sensitive receptors would not be exposed to substantial pollutant concentrations in this location under either alternative.

Alternative 2 would create more emissions from ground disturbance and other development activities in the Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave Eastern Slopes ecoregion subareas than under the Preferred Alternative (Appendix R2.2, Table R2.2-2 and Table R2.2-4).

IV.2.3.4.7.2 Alternative 2 Compared With Preferred Alternative for the BLM Land Use Plan Amendment

The BLM LUPA would not affect existing BLM guidance on air quality but would change the pattern of development. Under Alternative 2, the BLM LUPA would designate 718,000 acres of DFAs. Compared with the Preferred Alternative, which allows development on 367,000 acres, Alternative 2 could result in more development, and hence greater air emissions, on BLM lands.

IV.2.3.4.7.3 Alternative 2 Compared With Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 2 are the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 2 with the Preferred Alternative for the NCCP is the same as described for the Plan-wide DRECP.

IV.2.3.4.7.4 Alternative 2 Compared With Preferred Alternative for the GCP

The impacts under Alternative 2 and the Preferred Alternative for the GCP would be similar to the Plan-wide analysis, so there are no expected changes.

IV.2.3.5 Alternative 3

IV.2.3.5.1 Plan-wide Impacts of Implementing the DRECP: Alternative 3

Alternative 3 has the common goal with the other alternatives of confining renewable energy development to low-conflict disturbed lands, thereby providing the lowest conflicts between biological and nonbiological resources. The DFAs under Alternative 3 are dispersed, with less development planned for the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes ecoregion subareas. Minimum development flexibility would also result. The DFAs under Alternative 3 total 1,406,000 acres, compared with 2,024,000 acres under the Preferred Alternative. Alternative 3 results in the permanent disturbance of 150,000 acres

IV.2.3.5.1.1 Plan-wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development

Impact Assessment

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

All of the Plan components from the renewable energy technologies and transmission would increase construction dust and exhaust emissions from construction equipment and vehicles,

which could violate or contribute to existing violations of air quality standards, which would in turn be an air quality impact during the construction under Alternative 3. The sources of construction dust and the types of motor vehicle or off-road equipment sources would be similar at all development sites. Ground disturbance would also generate dust.

Alternative 3 covers the same air basins as the No Action Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. Aside from site-specific differences and differences in the acres of dust-generating activities, this alternative would result in the same total Plan-wide emissions from construction-phase activities for developing approximately 20,000 MW of renewable energy installed capacity as would occur under the No Action Alternative and the Preferred Alternative.

Each of the four air basins would be affected by construction emissions, depending on the geographic distribution of the development mix under Alternative 3. Table IV.2-6 shows estimated construction-phase emissions for each air basin during potential build out.

Table IV.2-6
Estimated Construction-Phase Emissions, Alternative 3

Air Basin	Capacity (MW)	NOx (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)
Great Basin Valleys	700	203	49	140	28
Mojave Desert	11,200	3,248	784	2,240	448
Salton Sea	7,800	2,262	546	1,560	312
San Diego	600	174	42	120	24
Total	**20,000**	**5,900**	**1,400**	**4,100**	**800**

Source: Estimated construction-phase emissions for the Plan Area equal to the capacity (MW) for each air basin (Appendix F2) multiplied by an average emission factor of total construction-phase emissions in tons per MW (from data for existing projects in the Plan Area presented in Volume III, Section III.2.8, and Appendix R1.2-1).

The nonattainment air basins with renewable energy development under Alternative 3 would experience a short-term air quality impact from an increase in dust emissions plus vehicle and equipment exhaust emissions due to project development. These emissions could violate air quality standards or exacerbate existing air quality violations and nonattainment conditions during the short-term phases of construction.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

All of the Plan components from the renewable energy technologies and transmission from operations and maintenance activities would increase vehicle and equipment use with their associated exhaust emissions, dust emissions, and, for some projects, new stationary

or portable emissions sources. Emissions from these sources could violate or contribute to existing violations of air quality standards. Examples of these activities and sources are listed in the Impact AQ-2 discussion for the No Action Alternative in Section IV.2.3.1.1.1.

All of the renewable energy technologies would require some operations and maintenance activities, causing new sources of dust emissions and sources that emit combustion by-products. Because these activities are within both state and federal nonattainment areas, emissions from operations and maintenance activities would exacerbate nonattainment conditions.

Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

All of the Plan components from renewable energy and transmission projects would cause exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and, in some cases, new stationary or portable sources of emissions. Depending on the development sites, new emissions sources from renewable energy projects could be close enough to sensitive receptors to expose them to adverse air pollutant concentrations under Alternative 3.

The areas available for renewable energy development under Alternative 3 surround multiple cities with residences, hospitals, and schools including: Tehachapi, California City, Lancaster, Adelanto, Victorville, Barstow, Blythe, Calipatria, and Calexico. Because the specific renewable energy project sites are not yet known, sensitive receptors could experience adverse air pollutant concentrations under Alternative 3.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

All of the Plan components from renewable energy and transmission projects would generate emissions that could conflict with applicable air quality plans in nonattainment areas if projects do not fully implement control strategies in those plans.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Geothermal projects may cause objectionable odors. Under Alternative 3, geothermal technology is planned within DFAs in the Owens River Valley, Mojave and Silurian Valley, or Imperial Borrego Valley ecoregion subareas. Because a substantial number of people live in these areas, geothermal development could create air quality impacts for people within one mile of the odor sources. Although routine operations of geothermal facilities would

include applicable odor controls, an air quality impact would still occur if operations, accidental releases, or upset conditions caused noticeable odors.

Impacts in Study Area Lands

Future Assessment Areas (FAAs). Lands within FAAs are neither reserve lands nor DFAs; they are simply areas that are deferred for future assessment. The future assessment will determine their suitability for renewable energy development or for ecological conservation. If renewable energy development occurs on FAA lands, a Land Use Plan Amendment would not be required. FAAs for each alternative are shown in Table IV.1-2 and Figure II.6-1 for Alternative 3 in Volume II. The FAAs represent areas where renewable energy development or inclusion to the reserve design could be implemented through an amendment to the DRECP, but additional assessment would be needed.

Because most of the FAAs are presented as undesignated areas in the action alternatives, there would be no difference between the FAAs in the Preferred Alternative except that renewable development in an FAA would not require a BLM Land Use Plan Amendment so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of the FAAs would impact air quality, as it would within DFAs.

Special Analysis Areas. Designating the SAAs as conservation would have no impact on this resource. Impacts would be the same as those explained for the Plan-wide reserve design.

DRECP Variance Lands. DRECP Variance Lands represent the BLM Solar PEIS Variance Lands screened for the DRECP and based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. However, development of renewable energy on Variance Lands would not require a BLM Land Use Plan Amendment, so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of DRECP Variance Lands would impact air quality, as it would within DFAs.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementa-

tion of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 3 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands (see Section IV.2.3.2.1.1 for a list of the CMAs).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.2.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce the adverse impacts from Alternative 3.

The impacts for Alternative 3 are the same as the Preferred Alternative, so the mitigation is also the same (see Section IV.2.3.2.1.1 for the complete list of mitigation measures).

IV.2.3.5.1.2 Impacts From Reserve Design

Alternative 3 would provide more than 7 million additional acres within the Plan Area with protective land designations. Establishing lands with protective designations would restrict development and the potential for air quality impacts.

IV.2.3.5.2 Impacts of DRECP LUPA on BLM Land: Alternative 3

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.2.3.5.2.1 Impacts From Renewable Energy and Transmission Development on BLM Land

Streamlining renewable energy development on BLM lands within the DFAs would not change the expected Impacts AQ-1 through AQ-5 from ground disturbance and operations

activities, including activities in the nonattainment areas of individual air basins within the Plan Area (see Section IV.2.3.1.1). There are 211,000 DFA acres on BLM land.

IV.2.3.5.2.2 Impacts of Changes to BLM Land Designations

Because the BLM LUPA land designations protect ecological, historical, cultural, scenic, scientific, and recreational resources and values, the creation of air quality impacts would likely be limited. Land uses within these areas are allowed if they are compatible with the resources and values that the land designation is intended to protect. Impacts to air quality are not likely from changes to BLM land designations.

IV.2.3.5.3 Impacts of Natural Community Conservation Plan: Alternative 3

The impacts of the NCCP for Alternative 3 would be the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis.

IV.2.3.5.4 Impacts of General Conservation Plan: Alternative 3

The impacts of the GCP for Alternative 3 would be similar to those defined in Section IV.2.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

IV.2.3.5.5 Impacts Outside of Plan Area

IV.2.3.5.5.1 Impacts of Transmission Outside of Plan Area

The impacts of Outside of Plan Area transmission on air quality would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.2.3.1.5.1.

IV.2.3.5.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Under the proposed BLM LUPA, the only changes outside the Plan Area would be the designation of NLCS lands, ACECs, National Scenic and Historic Trails management corridors, VRM classes, and new land allocations to replace multiple use classes on CDCA lands. These changes emphasize habitat connectivity and cultural and botanical resource locations. BLM LUPA decisions outside the Plan Area would not create air quality impacts.

IV.2.3.5.6 CEQA Significance Determination for Alternative 3

AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.
Renewable energy and transmission projects would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to

existing violations of air quality standards. These emissions would cause short-term air quality impacts during construction. Impact AQ-1 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d in Section IV.2.3.2.1.1).

AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations. Renewable energy and transmission projects would result in increased vehicle and equipment use, increased activities on unpaved surfaces, and emissions from operations and maintenance, which could violate or contribute to existing violations of air quality standards. To ensure that emissions from operations would not worsen nonattainment conditions, mitigation would be necessary to control emissions sources from operations and maintenance activities under Alternative 3. Impact AQ-2 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, and AQ-2b in Section IV.2.3.2.1.1).

AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations. Development of renewable energy technologies and transmission would cause new sources of emissions from operations and maintenance activities at levels that may expose sensitive receptors to adverse air pollutant concentrations under Alternative 3. Mitigation would be necessary to control emissions of hazardous and toxic air contaminants and provide sufficient separation between new sources of air pollution and nearby receptors. Impact AQ-3 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans. Development of renewable energy and transmission projects would generate emissions that could conflict with applicable local air quality plans established for nonattainment areas. Mitigation would be necessary to ensure implementation of feasible construction-phase and stationary-source control measures in those plans. Impact AQ-4 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-5: Operations would create objectionable odors affecting a substantial number of people. Geothermal operations may cause objectionable odors for people within one mile of geothermal vents or other geothermal system sources. Impact AQ-5 would less be than significant with mitigation (see Mitigation Measure AQ-3a in Section IV.2.3.2.1.1.).

IV.2.3.5.7 Comparison of Alternative 3 With Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 3 with the Preferred Alternative.

IV.2.3.5.7.1 Alternative 3 Compared With Preferred Alternative for Plan-wide DRECP

Alternative 3 results in long-term impacts from construction dust from ground disturbance and exhaust emissions from construction equipment and vehicles. Alternative 3 would result in 5,000 more acres of permanent disturbance compared with the Preferred Alternative.

Alternative 3 covers the same air basins as the Preferred Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. The air basins with renewable energy development under Alternative 3 that are within state and federal nonattainment areas would experience similar impacts from development activities. The mitigation measures would be the same for Alternative 3 and the Preferred Alternative.

Alternative 3 would not have development activities near Twentynine Palms, similar to the Preferred Alternative, therefore sensitive receptors would not be exposed to substantial pollutant concentrations in this location under either alternative. Alternative 3 would not have development activities near Brawley, Holtville, Imperial, or El Centro, where the Preferred Alternative could; sensitive receptors would not be exposed in these locations under Alternative 3.

Alternative 3 would create more emissions from ground disturbance and other development activities in the Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave Eastern Slopes ecoregion subareas than under the Preferred Alternative (Appendix R2.2, Table R2.2-2 and Table R2.2-5).

IV.2.3.5.7.2 Alternative 3 Compared With Preferred Alternative for the BLM Land Use Plan Amendment

The BLM LUPA would not affect existing BLM guidance on air quality but would change the pattern of development. Under Alternative 3, the BLM LUPA would designate 211,000 acres of DFAs. Compared with the Preferred Alternative, which allows development on 367,000 acres, Alternative 3 could result in less development, and hence fewer air emissions, on BLM lands.

IV.2.3.5.7.3 Alternative 3 Compared With Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 3 are the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 3 with the Preferred Alternative for the NCCP is the same as described for the Plan-wide DRECP.

IV.2.3.5.7.4 Alternative 3 Compared With Preferred Alternative for the GCP

The impacts under Alternative 3 and the Preferred Alternative for the GCP would be similar to the Plan-wide analysis, and there are no expected changes.

IV.2.3.6 Alternative 4

IV.2.3.6.1 Plan-wide Impacts of Implementing the DRECP: Alternative 4

Similar to the Preferred Alternative, under Alternative 4, the DFAs on BLM lands have moderate conflict between biological and nonbiological resources and provide moderate development flexibility. The DFAs are concentrated in few locations with some smaller DFAs throughout the Plan Area. However, there are fewer DFAs in the Imperial Borrego Valley ecoregion subarea under Alternative 4 than under the Preferred Alternative. The DFAs under Alternative 4 total 1,608,000 acres, compared with 2,024,000 acres under the Preferred Alternative. Alternative 4 results in long-term impacts of 148,000 acres.

IV.2.3.6.1.1 Plan-wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development

Impact Assessment

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

All of the Plan components from renewable energy technologies and transmission would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to existing violations of air quality standards, which would in turn be an air quality impact during the construction under Alternative 4. The sources of construction dust and the types of motor vehicle or off-road equipment sources would be similar at all development sites. The ground disturbance would also generate dust.

Alternative 4 covers the same air basins as the No Action Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. Aside from site-specific differences and differences in the acres of dust-generating activities, this alter-

native would result in the same total Plan-wide emissions from construction-phase activities for developing approximately 20,000 MW of renewable energy installed capacity under the No Action Alternative and the Preferred Alternative.

Each of the four air basins would be affected by construction emissions, depending on geographic distribution of the development mix under Alternative 4. Table IV.2-7 shows the estimated construction-phase emissions for each air basin during the potential build out.

Table IV.2-7
Estimated Construction-Phase Emissions, Alternative 4

Air Basin	Capacity (MW)	NOx (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)
Great Basin Valleys	600	174	42	120	24
Mojave Desert	13,100	3,799	917	2,620	524
Salton Sea	6,100	1,769	427	1,220	244
San Diego	500	145	35	100	20
Total	**20,000**	**5,900**	**1,400**	**4,100**	**800**

Source: Estimated construction-phase emissions for the Plan Area equal to the capacity (MW) for each air basin (Appendix F2) multiplied by an average emission factor of total construction-phase emissions in tons per MW (from data for existing projects in the Plan Area presented in Volume III, Section III.2.8, and Appendix R1.2-1).

The nonattainment air basins with renewable energy development under Alternative 4 would experience a short-term air quality impact from increased dust emissions and vehicle and equipment exhaust emissions from project development. These emissions could violate air quality standards or exacerbate existing air quality violations and nonattainment conditions during short-term construction phases.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

All of the Plan components from renewable energy technologies and transmission would cause operations and maintenance activities that increase vehicle and equipment use with their associated exhaust emissions, dust emissions, and, for some projects, new stationary or portable emissions sources. Emissions from these sources could violate or contribute to existing violations of air quality standards. Examples of these activities and sources are listed in the Impact AQ-2 discussion for the No Action Alternative in Section IV.2.3.1.1.1.

All of the renewable energy technologies would require some operations and maintenance activities, creating new sources of dust emissions and combustion by-products from fossil-fueled sources. Because these activities would occur within both state and federal non-

attainment areas, emissions from operations and maintenance would exacerbate non-attainment conditions.

Impact AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations.

All of the Plan components from the renewable energy technologies and transmission would result in exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and, in some cases, from new stationary or portable sources of emissions. Depending on the development sites, new emissions sources could be close enough to sensitive receptors to expose them to adverse air pollutant concentrations under Alternative 4.

The areas available for renewable energy development under Alternative 4 surround multiple cities with residences, hospitals, and schools including: Tehachapi, California City, Lancaster, Adelanto, Victorville, Barstow, Blythe, Calipatria, and Calexico. Because the specific renewable energy project sites are not yet known, sensitive receptors could experience adverse air pollutant concentrations under Alternative 4.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

All of the Plan components from the renewable energy technologies and transmission would cause project-related emissions that could conflict with applicable local air quality plans in nonattainment areas if projects do not fully implement the control strategies in those plans.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Geothermal technology may result in objectionable odors. Under Alternative 4, geothermal technology is planned within DFAs in the Owens River Valley, West Mojave and Eastern Slopes, Mojave and Silurian Valley, or the Imperial Borrego Valley ecoregion subareas. Because a substantial number of people live in these areas, geothermal development could create air quality impacts for people within one mile of the odor sources. Although routine operations of geothermal facilities would need to include applicable odor controls, an air quality impact would still occur if operations, accidental releases, or upset conditions cause noticeable odors.

Impacts in Study Area Lands

Future Assessment Areas (FAAs). The FAAs represent areas where renewable energy development or inclusion to the reserve design could be implemented through an amend-

ment to the DRECP, but additional assessment would be needed. FAAs do not apply to Alternative 4.

Special Analysis Areas. Designating the SAAs as conservation would have no impact on this resource. Impacts would be the same as those explained for the Plan-wide reserve design.

DRECP Variance Lands. DRECP Variance Lands represent the BLM Solar PEIS Variance Lands screened for the DRECP and based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. However, development of renewable energy on Variance Lands would not require a BLM LUPA, so the environmental review process would be somewhat simpler than if the location were left undesignated. Development of the DRECP Variance Lands would impact air quality, as it would within DFAs. There are 588,000 acres of DRECP Variance Lands in Alternative 4, far greater than any other action alternative.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 4 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands (see Section IV.2.3.2.1.1 for a list of the CMAs).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory

Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.2.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce the adverse impacts from Alternative 4.

The impacts for Alternative 4 are the same as the Preferred Alternative, so the mitigation is also the same (see Section IV.2.3.2.1.1 for the complete list of mitigation measures).

IV.2.3.6.1.2 Impacts From Reserve Design

Alternative 4 would provide more than 7 million additional acres within the Plan Area with protective land designations. Establishing lands with protective designations would restrict development and the potential for air quality impacts.

IV.2.3.6.2 Impacts of DRECP LUPA on BLM Land: Alternative 4

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.2.3.6.2.1 Impacts From Renewable Energy and Transmission Development on BLM Land

Streamlining renewable energy development on BLM lands within the DFAs would not change the expected Impacts AQ-1 through AQ-5 from ground disturbance and operations activities, including activities in nonattainment areas of individual air basins within the Plan Area (see Section IV.2.3.1.1). There are 258,000 DFA acres on BLM land.

IV.2.3.6.2.2 Impacts of Changes to BLM Land Designations

Because the BLM LUPA land designations protect ecological, historical, cultural, scenic, scientific, and recreational resources and values, the creation of air quality impacts would likely be limited. Land uses within these areas are allowed if they are compatible with the resources and values that the land designation is intended to protect. Impacts to air quality are not likely from changes to BLM land designations.

IV.2.3.6.3 Impacts of Natural Community Conservation Plan: Alternative 4

The impacts of the NCCP for Alternative 4 would be the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis.

IV.2.3.6.4 Impacts of General Conservation Plan: Alternative 4

The impacts of the GCP for Alternative 4 would be similar to those defined in Section IV.2.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

IV.2.3.6.5 Impacts Outside of Plan Area

IV.2.3.6.5.1 Impacts of Transmission Outside of Plan Area

The impacts of transmission outside of the Plan Area on air quality would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.2.3.1.5.1.

IV.2.3.6.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Under the proposed BLM LUPA, the only changes outside the Plan Area would be the designation of NLCS lands, ACECs, National Scenic and Historic Trails management corridors, VRM classes, and new land allocations to replace multiple use classes on CDCA lands. These changes emphasize habitat connectivity and cultural and botanical resource locations. BLM LUPA decisions outside the Plan Area would not create air quality impacts.

IV.2.3.6.6 CEQA Significance Determination for Alternative 4

AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation. Renewable energy and transmission projects would increase construction dust and exhaust emissions from construction equipment and vehicles, which could violate or contribute to existing violations of air quality standards. These emissions would cause short-term air quality impacts during construction. Impact AQ-1 would be less than significant with mitigation (see mitigation AQ-1a, AQ-1b, AQ-1c, and AQ-1d in Section IV.2.3.2.1.1).

AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations. Renewable energy projects and transmission would increase vehicle and equipment activity and activities on unpaved surfaces, and emissions from operations and maintenance activities could violate or contribute to existing violations of air quality standards. To ensure that emissions from operations would not worsen nonattainment conditions, mitigation would be necessary to control emissions from operations and maintenance activities under Alternative 4. Impact AQ-2 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, and AQ-2b in Section IV.2.3.2.1.1).

AQ-3: Operations would expose air quality–sensitive receptors to adverse air pollutant concentrations. Development of the renewable energy projects and transmission would create new sources of emissions from operations and maintenance activities at levels that may expose sensitive receptors to adverse air pollutant concentrations under Alternative 4. Mitigation would be necessary to control emissions of hazardous and toxic air contaminants and to provide sufficient separation between new sources of air pollution and nearby receptors. Impact AQ-3 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans. Development of the renewable energy projects and transmission would result in emissions that could conflict with applicable local air quality plans established for nonattainment areas. Mitigation would be necessary to ensure implementation of feasible construction-phase and stationary source control measures in those plans. Impact AQ-4 would be less than significant with mitigation (see Mitigation Measures AQ-1a, AQ-1b, AQ-1c, AQ-1d, AQ-2a, AQ-2b, and AQ-3a in Section IV.2.3.2.1.1).

AQ-5: Operations would create objectionable odors affecting a substantial number of people. Geothermal operations may cause objectionable odors for people within one mile of geothermal vents or other geothermal system sources. Impact AQ-5 would be less than significant with mitigation (see Mitigation Measure AQ-3a in Section IV.2.3.2.1.1).

IV.2.3.6.7 Comparison of Alternative 4 With Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 4 with the Preferred Alternative.

IV.2.3.6.7.1 Alternative 4 Compared With Preferred Alternative for Plan-wide DRECP

Alternative 4 results in long-term impacts from construction dust from ground disturbance and exhaust emissions from construction equipment and vehicles. Alternative 4 would result in 3,000 more acres of ground disturbance compared with the Preferred Alternative.

Alternative 4 covers the same air basins as the Preferred Alternative, so state and federal air quality standards are the same as those described in Section IV.2.3.1.1.1. The air basins with renewable energy development under Alternative 4 that are within state and federal nonattainment areas would experience similar impacts from development. The mitigation measures would be the same for Alternative 4 and the Preferred Alternative.

Alternative 4 would not have development activities near Twentynine Palms, similar to the Preferred Alternative; therefore, sensitive receptors would not be exposed to substantial pollutant concentrations in this location under either alternative. Alternative 4 would not have development activities near Brawley, Holtville, Imperial, or El Centro, whereas the Preferred Alternative could; sensitive receptors would not be exposed in these locations under Alternative 4.

Alternative 4 would create more emissions from ground disturbance and other development activities in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, and West Mojave Eastern Slopes ecoregion subareas than would the Preferred Alternative (Appendix R2.2, Table R2.2-2 and Table R2.2-6).

IV.2.3.6.7.2 Alternative 4 Compared With Preferred Alternative for the BLM Land Use Plan Amendment

The BLM LUPA would not affect existing BLM guidance on air quality but would change the pattern of development. Under Alternative 4, the BLM LUPA would designate 258,000 acres of DFAs. Compared with the Preferred Alternative, which allows development on 367,000 acres, Alternative 4 could result in less development, and hence fewer air emissions, on BLM lands.

IV.2.3.6.7.3 Alternative 4 Compared With Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 4 are the same as those defined in Section IV.2.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 4 with the Preferred Alternative for the NCCP is the same as described for the Plan-wide DRECP.

IV.2.3.6.7.4 Alternative 4 Compared With Preferred Alternative for the GCP

The impacts under Alternative 4 and the Preferred Alternative for the GCP would be similar to the Plan-wide analysis so there are no expected changes.

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