V. INTERIM DESCRIPTION OF COVERED ACTIVITES

V.A Introduction

This interim work product for the Interim Description of Covered Activities addresses Sections 6.3 and 6.4 of the Working Draft Outline for the Desert Renewable Energy Conservation Plan (DRECP).

This work product consists of two parts:

- Draft DRECP principles regarding Covered Activities and the impact analysis:

  The principles are proposed to guide the quantification of impacts associated with Covered Activities that are proposed for take authorization under the DRECP. These impacts must be assessed to meet the requirements of take permits (as defined in the "Glossary of Terms" work product), and must be analyzed for the proposed length of the permit term.

- Description of Covered Activity types:

  The description of Covered Activities is based on the matrix developed by members of the Covered Activities Working Group, and supersedes the previous consultant work product, the Covered Activities Preliminary Description (presented to the DRECP stakeholders in November 2010). The compilation of these documents provides a list and description of the Covered Activities, including a description of the DRECP conservation actions.

V.B Draft DRECP Principles Regarding Covered Activities and the Impact Analysis

These draft principles are a first step in developing an approach to the impact analysis for the DRECP and are offered for discussion purposes with DRECP stakeholders:

1. Take permits will require quantification of anticipated impacts and levels of take. These impacts must be analyzed for the permit term.
2. Impacts/levels of take can be defined in a variety of ways. DRECP will consider defining levels of take by:
   a. Footprint in acres over the entire Plan Area
   b. Footprint in acres by land cover type
   c. Footprint in acres of Covered Species habitat

d. Footprint in acres by geographic area (Plan Area subunits)
e. Take of Covered Species by number of individuals.

3. Megawatts and technology mix are not well correlated with area of ground disturbance (and therefore effects on Covered Species) because they vary considerably by site and are changing as the technology changes. While important to define the purpose and need of the DRECP, they are problematic metrics for analysis of impacts to Covered Species.

4. It is assumed that the primary means of defining impacts is calculation of an area of ground disturbance. However, there is considerable uncertainty in many of the variables that determine areas of ground disturbance, such as acres per megawatt, acres by technology, technology mix, scale (i.e., mix of commercial vs. distributed), and energy sources within or outside the Plan Area. Therefore, it is assumed that area of ground disturbance "caps" can be used to assess impacts for any renewable energy technology.

5. Because of the unique impacts of some technologies, it may be necessary to consider other assessment parameters and set maximums for these parameters to address certain impacts unique to a particular technology. For example, measures of wind energy "footprint" could be established based on what correlates best with impacts to avian and bat Covered Species, such as total rotor-swept area, number of turbines, or average or maximum turbine height. Other technologies, such as transmission, solar-thermal, solar-photovoltaic (PV), or geothermal may also need similar assumed limits for the analysis to address their unique impacts (e.g., avian collision, groundwater use, or reflectivity).

6. The impact/levels of take quantifications need to be defensible and have a basis in the defined purpose and need of the DRECP. The basis for these quantifications can be determined from a variety of federal and state policies such as the state Renewable Portfolio Standard (RPS) goal, federal renewable energy goals, the Bureau of Land Management (BLM) Solar Programmatic Environmental Impact Statement (PEIS, BLM and DOE 2010), and others.

7. The policy direction is still too broad to use as the sole basis for quantifying areas of ground disturbance. It is anticipated that the California Energy Commission's (CEC's) efforts in developing future renewable energy targets will continue on a parallel track with the DRECP.

8. Because of this considerable uncertainty and therefore the challenges in predicting specific outcomes of renewable energy mixes in the desert, a dual-track approach is proposed to provide definition and quantification to Covered Activities, including:

a. Continuing to monitor the progression of the CEC's future renewable energy target development

b. Establishment of a range of development scenarios to evaluate the anticipated future needs of the Covered Activities, as a means of maintaining momentum in the DRECP planning process. It will be necessary to demonstrate that these estimates have some basis in purpose and need. The following figures are initial rough estimates for scenarios that could potentially meet anticipated future targets for renewable energy production:

   I. 100,000 acres of ground disturbance

   II. 250,000 acres of ground disturbance

   III. 500,000 acres of ground disturbance.

9. Using these development scenarios, the approach to the impact analysis will include elements such as:

   a. No renewables development within Exclusion Areas

   b. Assumption that best management practices (BMPs) will be implemented as appropriate, based on the following:

      I. *Best Management Practices and Guidance Manual* ("BMP Manual"), prepared by the Renewable Energy Action Team (REAT) agencies, December 2010 (REAT 2010)

      II. *California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development*, prepared by the CEC and the California Department of Fish and Game, April 2007 (CEC and CDFG 2007)-

      III. *Draft Eagle Conservation Plan Guidance,* prepared by the U.S. Fish and Wildlife Service, January 2011 (USFWS 2011)

   c. Other steps to be discussed with stakeholders and recommended in the Preliminary Conservation Strategy.

V.C Description of Covered Activity Types

Table V-1, DRECP Covered Activities Overview Chart, was prepared by members of the Covered Activities Working Group, and was presented to the Working Group in November 2010.

Table V-1
DRECP Covered Activities Overview Chart

	Trans-mission	Geo-thermal	Solar (PV)	Solar (CSP)	Wind
Initial (Pre-Construction) Activities					
• Geotechnical borings	✓	✓	✓	✓	✓
• Installation of temporary meteorological stations			✓	✓	✓
• Site reconnaissance (including species-specific surveys)	✓	✓	✓	✓	✓
• Test drilling for heat sources		✓			
• Test trenching	✓	✓	✓?	✓	✓?
Construction					
• Access roads (permanent and temporary)	✓	✓	✓	✓	✓
• Ancillary buildings	✓	✓	✓	✓	✓
• Clearing, staging, and storage areas	✓	✓	✓	✓	✓
• Evaporation ponds		✓		✓[1]	
• Fencing (temporary and permanent, for both wildlife and security)	✓	✓	✓	✓	✓
• Drainage: conveyance or semi-natural	✓	✓	✓	✓	✓
• Flood control structures	✓	✓	✓	✓	✓
• Generation facilities		✓	✓[2]	✓	✓
• Ground-disturbance activities (including grading and clearing vegetation)	✓	✓	✓	✓	✓
• Installation of utility services					
○ Electric (distribution lines, facilities, and interconnects)	✓	✓	✓	✓	✓

Table V-1
DRECP Covered Activities Overview Chart

	Trans-mission	Geo-thermal	Solar (PV)	Solar (CSP)	Wind
○ Natural gas / propane / hydrogen (distribution pipelines and interconnects or tanks/lines)		✓		✓[4]	
○ Sewage facilities/pipelines		✓	✓?	✓	✓?
○ Telecommunication (lines and facilities)	✓	✓	✓	✓	✓
○ Trash collection and disposal	✓	✓	✓	✓	✓
○ Water (wells or municipal water supply and pipelines)		✓	✓[5]	✓	?
• Meteorological stations		✓	✓	✓	✓
• Geothermal, solar, or wind energy collectors,[6] associated collector lines/pipelines[7] and control equipment/lines		✓	✓	✓	✓
• Site preparation (e.g., excavation for foundations)	✓	✓	✓	✓	✓
• Steam and wastewater lines		✓		✓	
• Substations	✓				
• Switchyards	✓				
• Testing[8]	✓	✓	✓	✓	✓
• Transmission gen-ties		✓	✓	✓	✓
• Transmission lines and facilities (New)	✓				
• Transmission lines and facilities (Upgrades)[9]	✓				
• Wire-stringing activities	✓				
Operations and Maintenance					
• Cleaning, maintenance, repair, and replacement of access roads	✓	✓	✓	✓	✓
• Cleaning, maintenance, repair, and replacement of generation facilities		✓	✓	✓	✓
• Cleaning, maintenance, repair, and replacement of met stations		✓	✓	✓	✓

Table V-1
DRECP Covered Activities Overview Chart

	Trans-mission	Geo-thermal	Solar (PV)	Solar (CSP)	Wind
• Cleaning, maintenance, repair, and replacement of geothermal/solar/ wind collectors		✓	✓	✓	✓
• Cleaning, maintenance, repair, and replacement of steam and wastewater lines		✓		✓	
• Cleaning, maintenance, repair, and replacement of substations and switchyards, including replacing equipment	✓				
• Cleaning, maintenance, repair, and replacement of lines/pipelines and facilities, including those used for utility services	✓	✓	✓	✓	✓
• Cleaning, maintenance, repair, replacement, and repainting of buildings/structures (including towers/poles)	✓	✓	✓	✓	✓
• Eliminating attractiveness of structures to wildlife	✓	✓	✓	✓	✓
• Fence repair and replacement	✓	✓	✓	✓	✓
• Fire hazard/fuel management/clearing	✓	✓	✓	✓	✓
• Gas/propane combustion (auxiliary heat/steam source)		✓		✓[5]	
• Maintenance of drainage and flood control structures	✓	✓	✓	✓	✓
• Monitoring	✓	✓	✓	✓	✓
• Hazardous materials treatment and disposal	✓	✓	✓	✓	✓
• Pumping of water wells (if water wells are used)		✓	✓[6]	✓	
• Road repair and replacement	✓	✓	✓	✓	✓
• Solid waste disposal	✓	✓	✓	✓	✓
• Testing[9]	✓	✓	✓	✓	✓

Table V-1
DRECP Covered Activities Overview Chart

	Trans-mission	Geo-thermal	Solar (PV)	Solar (CSP)	Wind
• Vegetation management and weed/pest control	✓	✓	✓	✓	✓
Decommissioning					
• Removal of buildings, equipment, and structures[10]	✓	✓	✓	✓	✓
• Removal of lines and pipelines	✓	✓	✓	✓	✓
• Removal of energy collectors		✓	✓	✓	✓
• Restoration[11] and revegetation[12]	✓	✓	✓	✓	✓
• Monitoring	✓	✓	✓	✓	✓

Notes:

1. Not all CSP will utilize evaporation ponds; for example, dish and some tower applications do not
2. Includes DC conversion and other facilities
3. Includes common facilities for wind farms
4. Not all CSP will utilize natural gas, propane, or hydrogen
5. If panels are washed.
6. Including geothermal headers, dishes, heliostats, panels, troughs, and wind turbines (or blades)
7. Including electric, steam, thermal storage/transfer fluid
8. Includes mechanical and electrical testing, flood control testing, and, for steam applications, pressure testing
9. Includes reconductoring, rebuilding or inter-setting with additional structures, as well as new poles
10. Includes disposal of any solid wastes and hazardous materials
11. Includes topographical and hydrological features
12. Includes replanting and continued weed control if necessary

Based on the list of Covered Activity types and actions, the following description is taken from the Covered Activities Preliminary Description, which was presented to the Covered Activities Working Group and stakeholders in November 2010. These descriptions are largely based on information contained in the Renewable Energy Transmission Initiative (RETI) Phase 1A Final Report (RETI Coordinating Committee 2008). Section V.D discusses the implementation actions associated with these project types, including construction, operation, and maintenance activities.

V.C.1 Transmission Facilities

New or modified/expanded transmission facilities will be necessary for implementation of renewable generation projects. Transmission facilities would generally include transmission lines, roads, and substations, as further described below.

V.C.1.a Transmission Lines

Extending or expanding a transmission line may require acquisition and/or expansion of right-of-way. Covered transmission line activities will generally occur within the right-of-way, but in some cases access roads may be located outside of the designated right-of-way. Support structures for transmission lines may include lattice steel towers, wood poles, steel monopoles, and transition structures that are specially designed support structures for changing line direction and terminal or "dead-end" line features. Foundations and guy wires may be part of the support structures. In addition, safety features, such as aerial marker spheres and aircraft warning lighting, may also be required. Although extensive use of underground transmission facilities may not be practicable, underground facilities, such as transmission lines, duct banks, and splice vaults, are also included as Covered Activities. Transmission facilities will also require access and spur roads for both construction and operation/maintenance.

V.C.1.b Substations and Switchyards

Substations and switchyards are hubs for electrical power sources, and coordinate the exchange of power between the generators and the transmission lines in the area, or provide a junction for transmission lines, converting high voltage lines to lower voltage for distribution to consumers.

Substations and switchyards typically contain transformers, shunt capacitors, breakers, disconnect switches, protective relays, metering and Supervisory Control and Data Acquisition (SCADA) system equipment, emergency power generators, fire prevention systems (including hydrants, water tanks, and walls between transformer phases), relay/ control shelters, storage buildings, oil and chemical containment systems, and communications facilities.

A new or expanded substation may require ground disturbance to accommodate additional transformers, new distribution line outlets, and possibly new fencing for safety and security. Substation sites are typically graded, paved, or surfaced with hardscape.

V.C.2 Solar Projects

Solar power projects are facilities that convert sunlight into electricity, either directly using PV technology, or indirectly with concentrated solar power (CSP), which focuses the sun's energy to heat a working fluid, such as heat transfer fluid, hydrogen, or water, which is then used to drive turbines or engines to produce power.

This section describes the various technologies in operation today, including some of the specific characteristics of projects based on current technology and design. However, future advances in technology may affect the design of facilities within the timeframe of the DRECP. Therefore, the following descriptions are limited to the features used on modern solar facilities. Future designs may deviate from the specific descriptions provided in this section.

Features that are common to all solar projects include ancillary facilities, such as operation and maintenance buildings that may be used for storage and maintenance purposes. All solar projects will require access roads for construction, routine maintenance, and operations. Within a project site, maintenance roads are required to provide access for washing and maintenance of the solar fields. In addition, on-site energy storage may also be included within the design of the solar projects. Large-scale storage technology is in developmental stages at present, but will likely be part of future projects.

<<Energy storage requires discussion among the REAT, the DRECP Stakeholder Committee, and DRECP working groups, on the extent to which storage technology and options should be outlined.>>

V.C.2.a Solar Thermal

Thermal plants consist of two major subsystems: a collector system that collects solar energy and converts it to heat, and a power block that converts heat energy to electricity. CSP power plants produce electric power by collecting the sun's energy to generate heat using various mirror or lens configurations. The technologies discussed include:

- Parabolic trough
- Parabolic dish
- Power tower
- Compact Linear Fresnel Reflector (CLFR)
- Solar Chimney.

For solar thermal electric systems, the heat is transferred to a turbine or engine for power generation. Other solar thermal systems, like the solar chimney, collect solar heat without the aid of concentrators.

All CSP systems make use of the direct normal insolation (DNI) component of solar radiation, that is, the radiation that comes directly from the sun. While the collection systems vary among the types of solar thermal facilities described below, the power block

facility is common to all but the solar chimney. A power block facility typically includes an electrical building, auxiliary boilers, an air emission control system for the combustion of natural gas or propane in the auxiliary boilers, a steam turbine generator, a cooling tower, water treatment equipment, a hazardous materials storage area, petroleum-based fuel storage and delivery system, auxiliary equipment (emergency diesel generator, diesel fire pump, etc.), and water storage tanks.

Concentrating solar thermal projects can be wet or dry cooled. Wet cooled plants will use significant amounts of water, roughly 750 to 850 gallons per megawatt hour (MWh). Dry cooled plants will use much less water, roughly 20 to 45 gallons per MWh, mostly for mirror (or heliostat) washing.

<<Note to reviewers: Water usage is described in general terms; however, the source of water and the effects of water use vary significantly from project to project. The effects of water use (which may include recycled water diversions from land discharge, groundwater pumping, or other sources) and water pumping or diversions are considered to be Covered Activities and will require discussion among the REAT, the DRECP Stakeholder Committee, and DRECP working groups.>>

Parabolic Trough Solar Thermal Systems. Parabolic trough systems concentrate DNI using single-axis tracking, parabolic curved, trough-shaped reflectors onto a receiver pipe or heat collection element (HCE) located at the focal line of the parabolic surface. A high temperature heat transfer fluid (HTF) picks up the thermal energy in the HCE. Heat in the HCE is then used to make steam in the steam generator. The steam drives a conventional steam-Rankine power cycle to generate electricity. A collector field typically contains many parallel rows of troughs connected in series. Rows are typically placed on a north–south axis, allowing the single-axis troughs to track the sun from east–west during the day.

Parabolic Dish-Engine Systems. A solar parabolic dish-engine system comprises a solar concentrator (or "parabolic dish") and the power conversion unit (PCU). The concentrator consists of mirror facets that combine to form a parabolic dish. The dish redirects DNI to a receiver mounted on a boom at the dish's focal point. The system uses a two-axis tracker such that it points at the sun continuously.

The PCU includes the thermal receiver and the engine-generator. In the solar receiver, radiant solar energy is converted to heat in a closed hydrogen loop, driving the Stirling engine-generator. PCUs are air-cooled.

Power Tower Systems. A power tower uses thousands of sun-tracking mirrors called heliostats to redirect DNI to a receiver at the top of a tower. Heliostats are placed around the power tower (see discussion below), directing solar radiation towards the power tower. The heliostats are connected with communication cables between each heliostat that are utilized to transmit signals from a computer that ensures the heliostats are moved throughout the day to track the movement of the sun across the sky. A solar power tower is located within the center of the heliostats and is utilized to capture the solar radiation being reflected off the heliostats. The receiver at the top of the tower either generates steam directly, or heats a molten nitrate salt HTF to generate steam. The steam is used in a conventional turbine generator to produce electricity.

Compact Linear Fresnel Reflector (CLFR). The CLFR is a solar thermal technology in which rows of mirrors reflect solar radiation on a linear receiver located on towers above the mirror field. In the CLFR, collector mirrors rotate on the linear axis parallel to the receiver, following the sun's movement throughout the day. The CLFR is similar to the more common solar parabolic trough systems in that it uses one-axis tracking to focus solar radiation on a linear receiver.

Solar Chimney. Unlike other solar thermal technologies, solar chimneys do not generate power using a thermal heat cycle. Instead, they generate and collect hot air in a large (several square miles) greenhouse. A tall chimney is located in the center of the greenhouse. As the air in the greenhouse is heated by the sun, it rises and enters the chimney. The natural draft produces a wind current that rotates a collection of dozens of ground mounted air turbines. Solar chimney systems behave differently from the other solar technologies in that they can continue to produce electricity beyond sunny periods without the use of thermal storage systems or fossil fuels. Only a residual heat difference is needed.

V.C.2.b Solar Photovoltaic

Solar PV converts sunlight (also known as insolation) directly into electricity. The power produced depends on the material involved and the intensity of the solar radiation incident on the cell. Single or polycrystalline silicon cells are most widely used today. Single crystal cells are manufactured by growing single crystal ingots, which are sliced into thin cell-size material. Thin film solar cells are made from layers of semiconductor materials only a few micrometers thick. These materials make applications more flexible, as thin film PV can be integrated into roofing tiles or windows. Thin film cells significantly reduce cost per unit area, but also result in lower efficiency cells. Gallium arsenide cells are among the most efficient solar cells and have other technical advantages, but they are also more costly and typically are used only where high efficiency is required even at a high cost, such as space

applications or in concentrating PV applications. Additional advanced technologies are under development including dye sensitized solar cells (DSSC) and organic light emitting diodes (OLED).

Concentrating Solar Photovoltaic Systems. Concentrating photovoltaic (CPV) plants provide power by focusing solar radiation onto a PV module, which converts the radiation directly to electricity. Either mirrors or lenses can be used to concentrate the solar energy for a CPV system. Most CPV systems use two-axis tracking to achieve point focus images on PV cells.

V.C.3 Wind Projects

Wind energy systems convert the movement of air to power by means of a rotating turbine and a generator. The efficiency of an installation depends on the wind regime in the area and energy capture characteristics of the wind turbine, and, therefore, siting requirements are important project considerations. To provide a dependable resource, wind energy systems may be coupled with energy storage or with other power generation sources.

<<Energy storage requires discussion among the REAT, the DRECP Stakeholder Committee, and DRECP working groups, on the extent to which storage technology and options should be outlined.>>

Wind turbines typically consist of three main parts: the turbine tower, turbine rotor, and the nacelle. The turbine tower typically consists of tubular steel pole sections or could be made of a lattice tower configuration. A turbine rotor and the nacelle (which includes the electrical generator) are mounted on top of each turbine tower.

A turbine rotor and the nacelle (which includes the electrical generator) are mounted on top of each turbine tower. Turbines typically include a pad-mounted transformer located at the base of each turbine that is utilized to step-up the electricity received from the wind turbine for distribution in the collector cable system. The collector cable system connects the individual turbines and transmits electricity generated by the turbines to a centrally located overhead collector cable system. The collector cable system transmits electricity to a collector substation, which is further described in Sections V.C.1a and V.C.1b.

V.C.4 Geothermal Projects

Geothermal resources can provide energy for power production and other applications by using subsurface heat from the earth to generate steam and drive turbine generators. Geothermal power can be developed where subsurface temperature gradients are elevated,

such as in areas of young volcanism. However, there are other geologic settings favorable to geothermal development, including areas where the earth's crust is relatively thin, which leads to greater heat flow from the earth's interior. Tectonically active (but not necessarily volcanic) areas are also favorable because of the presence of significant faulting and fracturing that can allow deep circulation and heating of ground waters. Subsurface temperature gradients measured in wells help to determine the potential for geothermal development and the type of geothermal power plant installed. High-energy sites are suitable for electricity production, while low-energy sites are suitable for direct heating. Most of the known and most easily accessible geothermal resources in the United States are concentrated in the west and southwest parts of the country.

Geothermal power generation facilities generally consist of a production well that is drilled into a known geothermal reservoir. Typically, an injection well is also drilled to return used geothermal fluids to the geothermal reservoir. Hot, pressurized geothermal fluid, or a secondary working fluid, is allowed to expand rapidly and provide rotational or mechanical energy to turn the turbine blades on a shaft. There are three geothermal power plant technologies that are typically used to convert hydrothermal fluids to electricity. The conversion technologies are dry steam, flash, and binary cycle. The type of conversion used depends on the state of the fluid (whether steam or water) and its temperature. Dry steam power plants systems use the steam from the geothermal reservoir as it comes from wells, and route it directly through turbine/generator units to produce electricity. Flash steam plants are the most common type of geothermal power generation plants in operation today, and use water at temperatures greater than 360°F (182°C) that is pumped under high pressure to the generation equipment at the surface. Binary cycle geothermal power generation plants pass moderately hot geothermal water by a secondary fluid with a much lower boiling point than water. This causes the secondary fluid to flash to vapor, which then drives the turbines.

V.C.5 Temporary and Permanent Appurtenant Facilities

Temporary and permanent appurtenant facilities will be required to support the energy collection and distribution infrastructure described in Sections V.C.1 and V.C.4. Appurtenant support facilities will include:

- Paved and unpaved access roads for construction, operation, and maintenance purposes, including way-finding signage
- Meteorological stations
- Ancillary buildings for administrative use, maintenance, storage, etc.

- Parking areas
- Staging and open storage areas
- Outside lighting of grounds and facilities
- Evaporation ponds
- Fencing for wildlife, security, safety, etc.
- Drainage and flood control facilities
- Water treatment facilities
- Installation of utility services in support of project activities, such as:
    - Natural gas/propane/hydrogen distribution pipelines and interconnects or tanks/lines
    - Sewage facilities, pipelines
    - Telecommunication lines and facilities
    - Trash collection and disposal infrastructure
    - Water wells, water tanks, and/or municipal water supply and pipelines
- Steam and wastewater infrastructure (for geothermal projects)
- Pre-operational testing of mechanical, electrical, flood control, and pressure testing.

V.C.6 DRECP Conservation Actions

Certain activities associated with management on DRECP conserved lands may result in Incidental Take of Covered Species. Moreover, some activities undertaken during monitoring (e.g., capture, relocation to prevent injury or death, trapping, handling, enhancement of propagation, use of recorded vocalizations, marking) likely will result in the non-incidental take, or take for scientific purposes, of Covered Species. Take for scientific purposes of listed species needs to be authorized under the federal Endangered Species Act (FESA) and California Endangered Species Act (CESA).

Take of Covered Species resulting from management and monitoring activities is a Covered Activity provided that such take occurs during activities specifically described in the monitoring and adaptive management plan. Take provisions shall be consistent with the U.S. Fish and Wildlife Service policy, as described in the "Habitat Conservation Planning Handbook" (USFWS 1996). Monitoring and management activities need to be otherwise lawful and such appropriate authorizations, as necessary, may need to be

obtained from federal or state agencies. Management and monitoring actions may include but are not limited to the activities listed below.

<<Note to reviewers, the following list and conditions or details associated with the proposed activities will be further expanded as the management and monitoring program is developed. The following list is intended to provide the basic framework for covered management and monitoring activities.>>

- Vegetation management
- Relocation of Covered Species under limited circumstances
- Demolition or removal of structures or roads to increase public safety or to restore habitat
- Control of introduced predators
- Control of invasive species
- Habitat enhancement, restoration, and creation
- Species surveys, monitoring, and research.

V.D DESCRIPTION OF COVERED ACTIVITY IMPLEMENTING ACTIONS

V.D.1 Initial Pre-Construction Activities

<<Note to reviewers: Additional detail will be included based on input and review from industry, Covered Activities Working Group, and REAT agencies.>>

- Site reconnaissance (including species-specific surveys, cultural surveys, and other environmental studies)
- Geotechnical investigations, including borings (coring, trenching, seismic testing)
- Hazardous materials investigations
- Hydrological investigations, including test well drilling, test drilling for heat sources, and test trenching
- Temporary meteorological tower installation.

V.D.2 Construction Activities

Construction activities for all project-related work associated with the activities described in Sections V.C.1 through V.C.5 are Covered Activities under the DRECP. Such activities would include all aspects of site preparation and ground disturbance activities, including clearing of vegetation and wildlife species, grading, excavation for foundations, rock/material hauling, hammering/blasting, trenching, materials stockpiling and reuse, wire-stringing activities, horizontal boring, or directional drilling and construction access. Renewable power plant activities would include:

- Temporary staging area set up
- Temporary meteorological tower removal
- Road infrastructure upgrades—widening existing roads, installation of new roads
- Wind turbine construction
- Collection and communication system installation—collection and communication lines, substations
- Permanent meteorological tower installation
- Reclamation activities—roads, staging areas.

<<Note to reviewers: Additional detail will be included based on input and review from industry, Covered Activities Working Group, and REAT agencies. In addition, specific avoidance and minimization measures, as well as BMPs would be described in this section or directed to other appropriate discussions in the Plan.>>

V.D.3 Operations and Maintenance Activities

<<Note to reviewers: The following discussion provides an outline and framework for covered operations and maintenance activities. Additional detail will be included based on input and review from industry, Covered Activities Working Group, and REAT agencies. Specific parameters on operations and maintenance activities will be needed in order to address the direct and indirect effects of the proposed actions.>>

Operation activities include:

- On-site and off-site vehicle travel
- Inspections
- Monitoring

- Cleaning
- Testing (mechanical, electrical, flood control and pressure testing)
- Operation of existing infrastructure, facilities, hardware and equipment
- Hazardous materials treatment and disposal
- Pumping of water wells
- Solid waste disposal
- Gas/propane combustion
- Monitoring.

Maintenance activities include:

- On-site and off-site vehicle travel
- Ongoing and emergency repairs to facilities, structures, and access roads
- Repair or replacement of facilities, structures, and roads, as needed
- Inspection—pedestrian, light-duty motor vehicles, ATVs, or helicopters
- Painting and graffiti removal
- Repairs, replacement of facilities and hardware, including transformers, switches, fuses, cutouts, meters, and insulators, replacement or repair of anchors, cross arms, insulators, wires, cables, guys, and switches temporary support system (shoo-fly) may be installed to create a bypass around facilities needing repairs or upgrades
- Cleaning—insulator washing (truck- or trailer-mounted spray system, or an aerial/helicopter system), solar panel washing
- Tower/pole replacement or repair
- Electric line reconductoring
- Fire hazard/fuel management clearing, including tree removal and brush trimming
- Pest control
- Modifying structures to reduce attractiveness to wildlife.

Maintenance and operations would be conducted on all portions of and related to the energy facility.

V.D.4 Decommissioning Activities

<<Note to reviewers: Additional detail will be included based on input and review from industry, Covered Activities Working Group, and REAT agencies. >>

Decommissioning activities include the removal of:

- Energy-generating facilities
- Energy collectors, substations, switchyards, transmission gen-ties, lines, and facilities
- Utility transmission infrastructure and pipelines.

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