

DOCKETED

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STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the
**PALEN SOLAR ELECTRIC
GENERATING SYSTEM**

DOCKET NO. 09-AFC-07C

**DECLARATION OF KAREN
VOLTURA**

I, Karen Voltura, declare as follows:

1. I am presently employed as a Director, Wind Energy and Environmental Systems, by DeTect, Inc.
2. A copy of my professional qualifications and experience is included with my Supplemental Rebuttal Testimony.
3. I prepared the attached supplemental rebuttal testimony relating to Biological Resources for the Petition for Amendment for the Palen Solar Electric Generating System (California Energy Commission Docket Number 09-AFC-07C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on 16 July 2014.



Karen Voltura



In response to comments included in Energy Commission Staff Supplemental Staff Assessment And Testimony Palen Solar Electric Generating System, Section 4. Avian Deterrent Strategies

Staff is concerned that many of the methods identified by the Petitioner would be ineffective at PSEGS. The PSEGS would occupy an area of approximately five square miles (ca. 3,800 acres) with largely invisible flux fields generated around two 750-foot tall power towers. Dangerous levels of flux would be expected to occur several hundred feet off the ground. For the hazing to be effective birds must be prevented from entering the flux field. Methods that may be useful to prevent landing or disperse birds may be ineffective in preventing birds from entering an invisible flux field.

The MERLIN BCRS is operating (since 2008) at large facilities covering a much larger area and airspace volumes than will be required at the proposed Palen facility (e.g. CNRL, Exxon-Imperial, Suncor in the Canadian Oil Sands) and have been highly effective in protecting birds at these large facilities. The area of the solar flux is confined to zones around the towers and a deterrent system would be designed to cover those areas. The MERLIN BCRS system incorporates focused beam acoustic deterrent device for bird & wildlife control of variable intensity (up to 120 dB) with a narrow beam width (15-30 degrees) and an effective range of up to >1 kilometer. The system modular design and proven technology used results in a coverage area large enough to encompass the areas of the facility impacted by the solar flux and includes deterrents that would reach the altitudes necessary to deter and protect birds approaching the risk zone.

Cannons and pyrotechnics have been demonstrated to be effective for dispersing birds however; they may not be effective in preventing birds from flying at elevations where they are at risk from solar flux. It is also possible that use of these devices may flush birds into the flux fields. Noise from the devices would adversely affect wildlife in adjacent habitat and may disrupt foraging for desert kit fox, desert tortoise or Mojave fringe-toed lizards. If units are deployed in habitat off the project site, plants and animals could be subject to tramping, the spread of weeds or increased risk of wildfires.

Bird alert systems and use of long range acoustic devices may be effective under certain circumstances. However, systems that are radar activated may result in unintended impacts to other species of wildlife or non-target bird species that are at low risk from exposure to solar flux. Staff is uncertain as to the effectiveness of these devices on a project of this scale.

As stated above, the effective range of the long range acoustic deterrents used in the MERLIN BCRS are of longer range than standard pyrotechnics and propane canons and are capable of covering the area and elevations of the solar flux. Conventional bird control devices (propane cannons, omni-directional bioacoustics and effigies) do have limited effective ranges (less than 100-200 feet) and are best used as 'gap' filler units as part of a total system. To prevent flushing birds into the area of flux, the array of deterrents would be arranged around the tower so that birds' natural reaction of moving away from the sound would result in targets moving further away from the area of risk. Each deterrent device is assigned to a specific 'haze zone' within the MERLIN detect & deter software and is controlled by the master MERLIN Radar. Deterrent devices 'fire' singly or in groups and are activated through a series of custom controller units located at the master radar unit that provide the interface between the master MERLIN bird radar computer system and the satellite deterrent modules. Targets detected in a particular zone would trigger the deterrent or series of deterrents in that zone and from a direction that would move



the birds away from the risk rather than pushing them closer to the flux. As part of the adaptive management approach, if the radar data or observations from the site did indicate that either the deterrents or the arrangement of those deterrents was not eliciting an effective response from birds near the solar flux, the flexibility of the system and moveable components would allow for reconfiguration changes to be made to improve performance and protection for wildlife on site.

As for offsite concerns, the proposed implementation of a DeTect MERLIN BCRS would place all equipment on the project area and should not require installation outside the project boundaries. Unintended impacts on offsite wildlife are further minimized by proper siting and configuration of the system. The system as designed would optimize deterrent effects to a specific range and zone that is of primary concern for risk to wildlife. In this case the effective area of an automated deterrence system would be optimized for the solar flux area and a buffer zone to allow birds approaching the location time to respond to the deterrents. Spillover effects of sound to offsite wildlife will be minimized by acoustically tuning the system at setup to ensure offsite noise levels are nominal or non-existent. The volume levels of the LRADs are adjustable and after the system is set up noise levels are measured (using dosimeters) around and outside of the mirror field and system levels adjusted to minimize/eliminate any spillover. Additionally, the control zone is close-in to the towers and the LRADs will be aimed upwards at 30+ degrees, so sound propagation at ground level beyond the control zone will be minimal or zero as well as outside of the site.

Irritant fogging if used at PSEGS could result in direct impacts to sensitive plants and wildlife. Chemical fogs that blow off the project site can damage sensitive plants and may act as a chemical stabilizer of dune communities if they leave a sticky residue. This may degrade habitat values for Mojave fringe-toed lizards; ground nesting birds, and other species. Staff is unaware how this system would be deployed or if it would be effective based on the scale of the project.

Methyl anthranilate (MA) is a chemical, non-lethal bird repellent that is particularly effective against flying songbirds and roosting birds. Large areas of bird movement can be addressed with no impacts on other wildlife. With traditional fogging systems for dispersal of MA the accumulation on the mirrors is a concern at solar facilities but newer, dry-haze systems could be an effective use without any impact on the facility structures. This type of application would also minimize concerns of habitat degradation and offsite concerns from residue of a fogging system. The dry-haze application is also concentrated within the area of risk, in this case the solar flux, and as the particulates in the dry haze disperse further from the area of concern, the concentrations in the air would fall below that which would cause impacts to non-target animals and areas.