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| California Energy Commission DOCKETED 09-AFC-7C |
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June 6, 2013

California Energy Commission
Dockets Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: SCOPE OF WORK FOR PSEGS SUMMER 2013 PRE-CONSTRUCTION AVIAN FIELD SURVEYS PALEN SOLAR ELECTRIC GENERATING SYSTEM DOCKET NO. (09-AFC-7C)

Enclosed for filing with the California Energy Commission is the electronic version of **SCOPE OF WORK FOR PSEGS SUMMER 2013 PRE-CONSTRUCTION AVIAN FIELD SURVEYS**, for the Palen Solar Electric Generating System (09-AFC-7C).

Sincerely,

Marie Fleming



Bloom Biological, Inc.

Research | Consulting | Conservation

May 8, 2013

Mr. Charles Turlinski
Director – Project Development
BrightSource Energy, Inc.

[via email]

SUBJECT: Scope of work for conducting summer 2013 pre-construction avian field surveys for the Palen Solar Project located in the Chuckwalla Valley, Riverside County, California

Dear Mr. Turlinski:

Bloom Biological Inc. (BBI) proposes the following scope of work for conducting summer 2013 pre-construction avian field surveys for the Palen Solar Project located in the Chuckwalla Valley, Riverside County, California. The study methods proposed herein are based on recommendations for Tier 3 field studies described in the U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines, as well as recent guidance provided by the Renewable Energy Action Team (REAT) agencies specifically for the Palen Solar Project. This proposal addresses studies to be conducted between early May and mid-August. Surveys will begin as soon as practical after contract approval (ideally by May 6) and will last until August 15. Studies to monitor nocturnal use of the study area by birds and bats through the use of radar will be included in the fall 2013 proposal. A cost proposal is attached as Attachment A.

TASKS

Task 1. Bird Use (and Large Bird Migration) Counts

Description

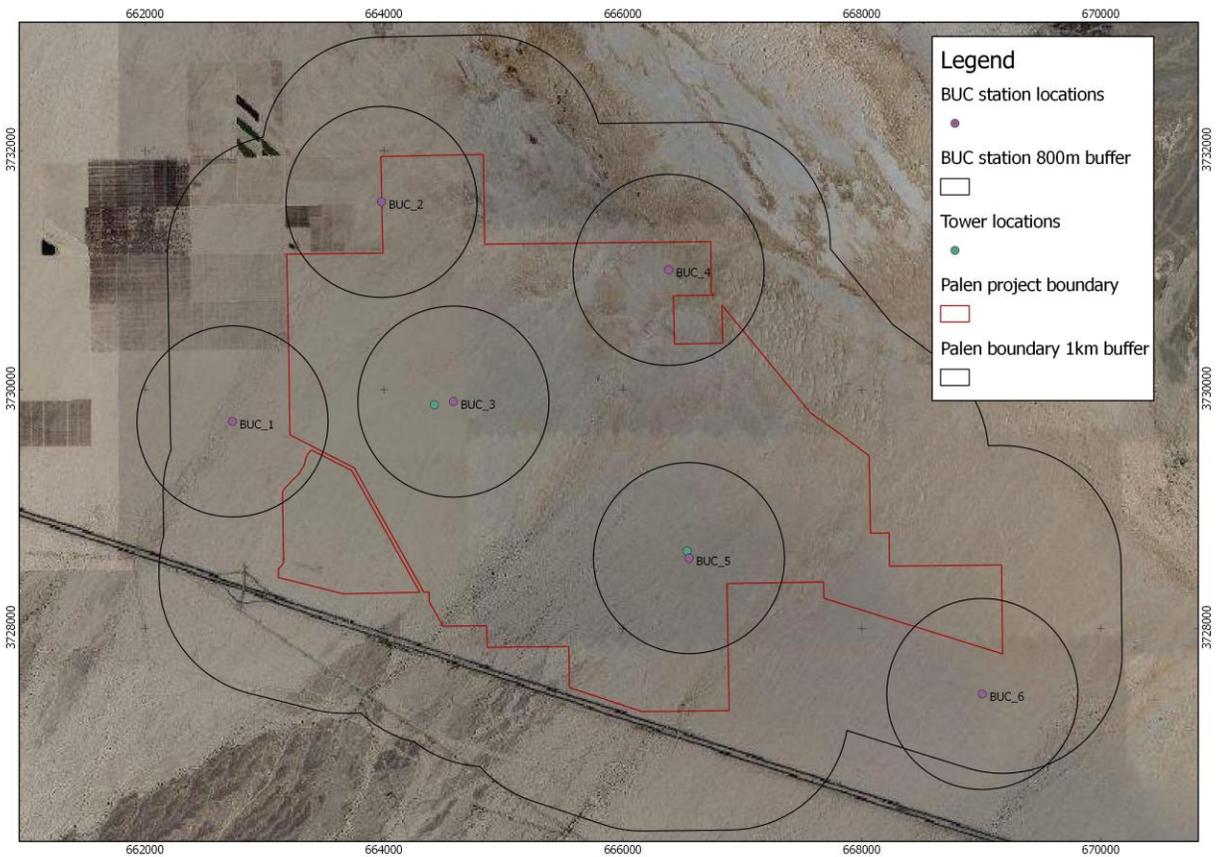
BBI will conduct Bird Use Count (BUC) surveys at six observation points from May 6 until August 15. These surveys are designed primarily to evaluate the use of the Project footprint and surrounding areas by medium to large resident and migratory birds, including Golden Eagles (*Aquila chrysaetos*) and other raptors, though small bird activity will also be documented.

From May 6 to June 1 (4 weeks in early summer) each observation point will be surveyed by a qualified avian biologist for 8 hours per day, one day per week. From June 1 through August 15th (10 weeks in late summer) each observation point will be surveyed by a qualified avian biologist for 4 hours per day, once every two weeks. Within each of these periods, the starting time for surveys will be rotated regularly such that $\frac{1}{4}$ of the surveys at each station will begin at sunrise, $\frac{1}{2}$ will begin 4 hours prior to mid-day and $\frac{1}{4}$ will begin 8 hours before sunset; thus ensuring that all stations are surveyed at all times of day, but with the focus being on the midday periods when raptors are expected to be most active. In addition, if the surveys are conducted by more than one biologist, an effort will be made to balance surveying among stations by different biologists.

The six BUC observation points are distributed across an area encompassing the project boundary plus a 0.6-mile (1 km) buffer, with a minimum of 1 mile (1.6 km) between each observation point, as shown below (Figure 1). Two of the BUC stations are situated within 220 yards (200 meters) of the proposed solar tower sites for the project. Though bird detections will be recorded at all distances, quantitative data will be recorded for detections occurring within a 0.5-mile (800-meter) radius of BUC observation points. Under this design, the total area surveyed from the

six BUC observation points (4.7 mi² or 12.1 km²) comprises 31.5% of the area occupied by the project boundary plus a 0.6 mile (1 km) buffer (14.8 mi² or 38.34 km²).

Figure 1: Arrangement of 6 BUC observation points across the Palen project site and 0.6 mi (1 km) buffer.



During BUC surveys, each biologist will remain at the station for the number of hours specified above (weather permitting) and record the following information for all birds detected regardless of their size or distance from the observer: time, observation point ID, species, distance and direction from surveyor, estimated height above ground level (agl), flight direction and number of individuals (if in moving in a group). Additional information regarding flight movements will be collected for all raptors, and other targets larger than an American Crow (*Corvus brachyrhynchos*) that pass within 0.5 miles (800 meters) of the observer, including the following (as pertains to behaviors within this distance range only): flight types observed, minimum height (agl), maximum height (agl), total number of minutes spent flying at heights greater than, or less than 200 meters. Using rangefinders, landmarks and reticle monoculars, all surveyors will be trained in estimating distances and heights across the range expected for these surveys. Surveyors will also be provided with a rangefinder when conducting surveys, so they can measure the distances to various landmarks around each station and use the landmarks accordingly in distance estimates.

Staffing

May 6 to June 1: One or two biologists work 9-hour field days (plus travel and data entry time) for a total of 6 biologist-days per week.

Timeline

Early Summer 2013 BUC Surveys: May 6 – June 1 (4 weeks).

Task 2. Small Bird Counts

Description

BBI will conduct Small Bird Count (SBC) surveys at 120 to 150 point count stations weekly from May 6 to June 30. Point count surveys will occur at the same 120 stations that were surveyed during the spring period (April 8 – May 3) until a revised set of SBC point count stations can be designed, which encompasses the project footprint plus a 1-mile (1.6 km) buffer, rather than a 0.6 mile (1 km) buffer surrounding it, as originally designed. It is anticipated that the new design will increase the number of stations from 120 to as many as 150. Once the expanded SBC station locations are finalized, BBI will begin surveying all 120-150 stations on the project footprint and 1-mile (1.6 km) buffer once per week. It is anticipated that this transition will occur by the week beginning with June 12.

SBC surveys are designed primarily to evaluate the use of the Project footprint and surrounding areas by resident and migrant passerines and other small and medium-sized birds, though larger birds and raptors will be recorded as well. All SBC surveys will be conducted between 15 minutes before sunrise and 6 hours after sunrise, to ensure the maximum probability of detecting target species, as this is the most active time of day for passerine birds, particularly in desert habitats. The order in which stations are surveyed will be rotated regularly such that each station is surveyed at different times of the morning. In addition, if surveys are conducted by more than one biologist, the surveyors will rotate between observation points to ensure that all points are surveyed equally by different biologists within a given season.

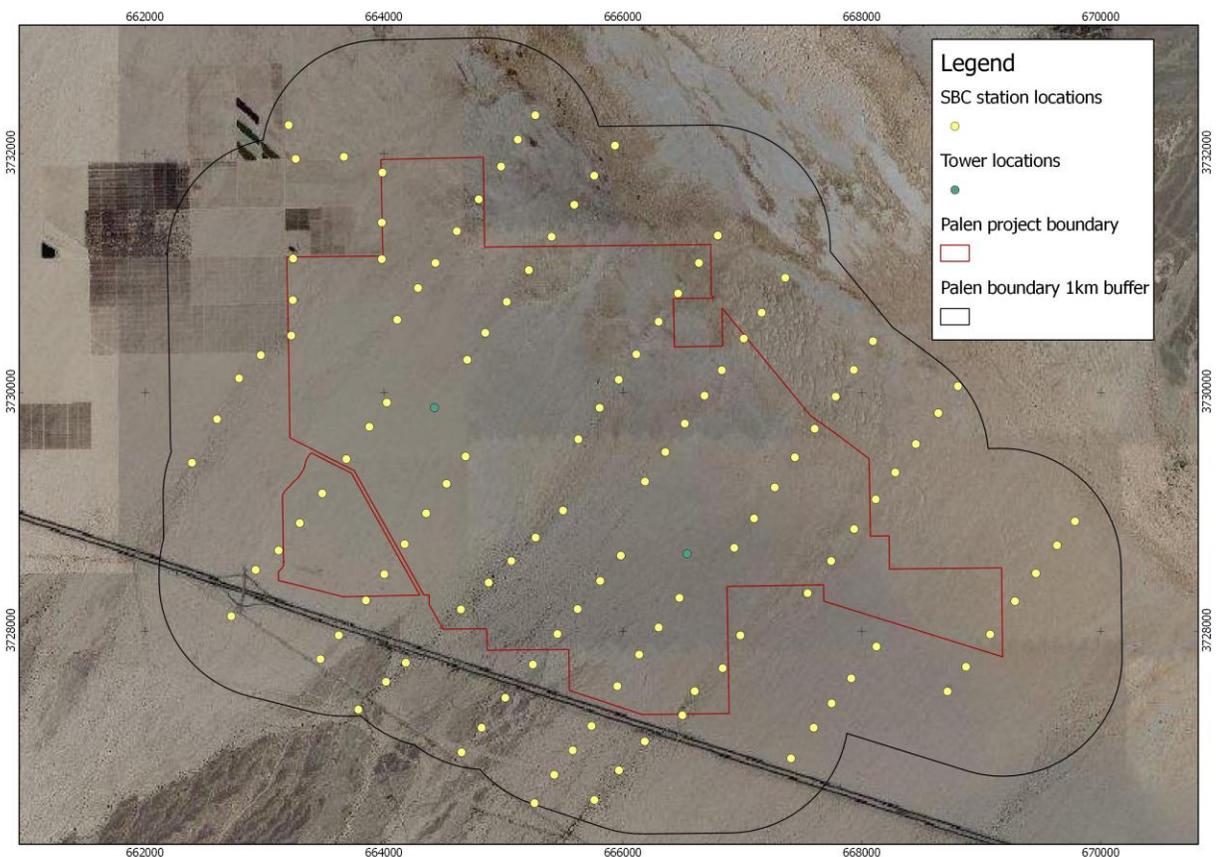
Presently, the 120 point count stations are arranged across the project footprint and a 0.6-mi (1-km) buffer surrounding it, along 15 transects, each approximately 2600 yards (2400 meters) in length, with 5-13 point count stations spaced 270-380 yards (250-350 meters) apart, as shown below (Figure 2). Transects are spaced roughly evenly along the east to west axis through the site, though their precise locations along this axis were chosen so as to ensure that different habitat types are sampled in proportion to their occurrence. Thus, approximately 50-60% of stations are within the area of direct impact from construction and 40-50% of them are situated at various distances from the direct impact zone and within the area of potential indirect impacts. No point count station is situated more than 1 kilometer from an area of direct (permanent) impact. Under this design, the total area surveyed from the 120 SBC stations comprises at least 9.8% (1.5 mi² or 3.8 km²) of the area occupied by the project boundary and 0.6 mile (1 km) buffer (14.8 mi² or 38.34 km²). This conservatively assumes a survey radius of 110 yards (100 meters) around each station, though many of the detections will likely occur at greater distances.

The 120 SBC point count stations are distributed relatively evenly across the site in an effort to provide coverage of different habitat types (strata) in proportion to their frequency of occurrence. Avian abundance and diversity among stations may ultimately be analyzed in relation to the following variables: distance from proposed tower locations, vegetation/habitat type, and distance from habitats that correlate with greater prey abundance (e.g., Sonoran desert wash, other areas with greater moisture or vegetation density). The same design will be applied when the number of stations is increased and BBI will provide new maps and statistics regarding the distribution of stations among habitats and key areas of interest near the site.

During SBC surveys, a qualified avian biologist will begin noting birds detected by sight and sound immediately after arriving at the station and for 10 minutes thereafter. Biologists will also record all sightings of potential Golden Eagle prey, such as small mammals, during the 10-minute surveys and while walking along transects between point count stations. Though bird of all sizes and at all distances from the observer will be recorded, an emphasis will be placed on detecting birds within 110 yards (100 meters) of the observer. For each bird detected, biologists will record the following information: species, sex (if known), age (if known), distance from station,

direction from station (W, NW, N, etc.), the minimum and maximum heights reached above ground, total number of minutes (rounded up to the nearest whole minute) observed flying between ground level and the height of the proposed towers and mode of detection (visual, song, call, other). Anecdotal observations indicating breeding activity will also be noted, including whether the birds were observed carrying nesting material or food, or attending nests or fledglings.

Figure 2: Arrangement of 120 SBC point count stations across the Palen project site and 0.6 mi (1 km) buffer.



Using rangefinders and landmarks, all surveyors will be trained in estimating distances across the range expected for these. Surveyors will also be provided with a rangefinder when conducting surveys, so they can identify the distances to various landmarks around each station and use the landmarks accordingly in distance estimates.

Staffing

Eight weeks of Summer SBC surveys: Three biologists work 7-hour field days (plus travel and data entry time) for a total of 15 biologist-days per week (At a maximum, depending on final number of points after expansion)

Timeline

Summer 2013 SBC Surveys: May 6 – June 30 (8 weeks).

Task 3. Mist Net Surveys

Description

No single method for evaluating avian diversity and abundance comes without the potential for systematic shortcomings. Point count surveys are often used for such evaluations because they can provide relatively robust estimates in different habitat types, and because distance methods can be used to control for detection probabilities when deriving density estimates. Indeed, the point count methodology implemented for SBC surveys in the present study provides the single most effective method for the task at hand, but one shortcoming is that some species or individuals may go undetected because they are elusive or move quickly through the survey area. This is potentially problematic during migration, when species may move through the site unnoticed, or without pausing and providing adequate time for identification. Additionally, and perhaps even more importantly, the SBC surveys described in Task 3 are designed to provide a baseline for the future evaluation of any changes in avian diversity and abundance within direct (permanent) impact areas from pre to post-construction. Once heliostats have been constructed within the majority of these point count stations, it is possible that the ability to detect birds, particularly those that forage and are otherwise found near the ground, will be lower within these areas because visual detection is obstructed by the presence of large heliostats, even though the mowed vegetation will enhance visibility over baseline conditions. This could lead to an underestimation of post-construction bird densities, and potentially to misleading results when compared with pre-construction surveys where heliostats were absent and detectability of these species was higher.

For these reasons it is critical to supplement SBC point count surveys with a secondary method that increases the probability of detecting inconspicuous birds, and which is not susceptible to differences in detectability such as those outlined above. BBI proposes to address this concern by implementing mist net surveys in a variety of habitats where point counts will also be conducted. Estimates of avian diversity and abundance from mist net surveys can be compared directly with those achieved during point count surveys in the same habitats to determine if the two methods provide comparable results. Perhaps even more importantly, the estimates from mist netting during pre-construction will provide a reliable baseline dataset for comparison with post-construction mist net and point count surveys after heliostats have been constructed on site.

Summer mist net surveys will be conducted along SBC point count transects and within 200 meters of a point count station in the following habitat types: Desert wash woodland, creosote scrub (but near open water and palm plantations on adjacent private land). Each week one habitat type will be surveyed for three consecutive days (weather permitting). At each location, twelve 12-meter long mist-nets will be arranged in three rows of four nets placed side-by-side reaching from east to west to maximize capture of migrant birds moving south to north. The nets may be slightly staggered along the east-west axis, and each row of nets will be spaced approximately 50-100 meters apart along the north-south axis, in a fashion that suits the vegetative structure of the specific banding site so as to maximize the probability of capturing birds.

From May 6 to June 15 (6 weeks), two biologists will work 3 days per week, 8 hours per day, to conduct mist-net surveys. An additional day will be devoted to setting up nets before the first morning of banding). During each day of mist-net surveys, the two biologists will work together to operate all 12 nets from sunrise until 1100h daily, except during precipitation or extreme temperatures, or if wind conditions cause the net trammels to billow out to the extent that they become highly visible and ineffective in catching birds.

All birds captured in nets will be removed carefully, banded with a unique aluminum Fish and Wildlife Service leg band and released. Information recorded for all captures will include: station, date, time, bander's name, band number, molt, level of stored fat, and feather/plumage characteristics and where possible, age and sex.

Staffing

Six weeks of summer mist net surveys: Two biologists work 7-hour field days (plus travel time to and from site) for 4 days (1 day to set up nets, 3 to run surveys) per week.

Timeline

Summer 2013 Mist Net Surveys: May 6 – June 15 (6 weeks).

Task 4. Focused Elf Owl Surveys

Description

BBI will conduct call-playback surveys for Elf Owls in suitable habitat on and adjacent to the site three times during the nighttime hours between May 6 and June 15. No standardized call-playback survey protocol for Elf Owls exists, therefore the methods presented herein are based on those recommended for Elf Owls at the nearby Rio Mesa Solar Electric Generating Facility in 2012 (URS 2012). The proposed survey period for the present survey would begin later than is recommended, and will miss the entire migratory season (which ends in mid-April). It is also recommended that surveys be conducted during a “preferred window” extending from the first week in April through May 15. As such, the proposed surveys will be conducted late, and although Elf Owls commonly call and are otherwise detected on territory during the months of May, June and July, their responsiveness is believed to be higher during the preferred window. As such, surveys conducted during the proposed window may fail to detect migrant birds that utilize the site earlier in the Spring season, and will have a lower probability of detecting territorial birds that would surveys conducted during April and early May.

Surveys will begin at twilight and last for 5 hours and will be conducted in all publicly accessible suitable habitat onsite and within a 1/2-mile buffer of the site. Where possible, surveys will also be conducted along the periphery of adjacent private lands with suitable habitat (e.g., palm plantation). Surveys will not be conducted when wind speeds are higher than 10-15 miles per hour or are otherwise judged to be capable of impeding the ability of biologists to detect calls at a distance of 220 yards (200 meters). During surveys, biologists will work in pairs for safety and detection-efficiency purposes. Pairs of biologists will walk through suitable habitat along pre-determined transect routes, stopping at call stations and intermediate listening stations spaced at regular intervals along transects. In areas near roads where noise from traffic may impede the hearing of biologists or owls (“high-noise” areas), call stations will be spaced at 160-yard (150-meter) intervals. In areas at least 0.6 miles (1 km) from the nearest roads with regular traffic (“low-noise” areas), call stations will be spaced at 440-yard (400-meter) intervals, and intermediate listening stations will be placed mid-way between each call station, at a 220 yard (200-meter) intervals.

At each call station, biologists will do the following: (1) Conduct a 2-minute listening period prior to broadcasting a taped call, (2) broadcast Elf Owl calls for 30-seconds, followed by a 90-second listening and observation period, (3) Repeat this calling/listening sequence for at least 10 minutes (high-noise areas) or 6 minutes (low-noise areas). During the survey/listening sequence, biologists will periodically scan trees and cavities, for owls that may be present and not vocalizing. After the 6-minute survey/listening sequence is completed, biologists will observe and listen for an additional 2 minutes before proceeding to the next call or listening station. Combined with the initial 2-minute listening period, the total time spent at each call station will be a minimum of 14 minutes (high-noise areas) or 10 minutes (low-noise areas). When broadcasting Elf Owl calls, the volume will be set at an adequate level to get complete coverage along a survey route without causing distortion to the call, and calls will be broadcast in all directions containing suitable habitat.

Intermediate listening stations will be spaced at 220-yard (200-meter) intervals between call stations in low-noise areas. At each intermediate call station, biologists will pause to watch and listen for Elf Owls in all directions for 2 full minutes, but will not broadcast playback unless an Elf Owl is detected that cannot be located.

If an Elf Owl is heard or seen at any point along the survey route, the biologist will end any broadcasts in progress to reduce further harassment, unless additional responses are needed to pinpoint the location of the owl. The biologist will observe the owl as long as possible without disturbing it and record all observations, including the use of cavities, evidence of breeding, and prey observations. Every effort will be made to determine more individuals are present at the location or nearby, in addition to the initially detected owl. The location will be marked with a handheld GPS and the coordinates recorded on a datasheet with relevant notes.

GPS logs will be kept from each survey by each biologist showing the exact path walked, all points at which call stations and listening stations were implemented, and the locations of any Elf Owls detected.

Staffing

May 6 to June 15: Six biologists work in three groups of two for one night per week, each for 7 hours of field time each night (plus travel and data entry time).

Timeline

Summer 2013 Elf Owl Surveys: May 6 – June 15 (6 weeks).

If you have any questions or comments about this proposal, please call Marcus C. England at (949) 272-0905.

Sincerely,

BLOOM BIOLOGICAL, INC.



Marcus C. England
Vice President



Michael Kuehn, Ph.D.
Senior Biologist/Statistical Analyst



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**PALEN SOLAR ELECTRIC
GENERATING SYSTEM AMENDMENT**

**Docket No. 09-AFC-7C
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(Revised 05/23/2013)**

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Galen Lemei
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Adviser to Presiding Member

Gabe Taylor
Adviser to Associate Member

Eileen Allen
Commissioners' Technical
Adviser for Facility Siting

DECLARATION OF SERVICE

I, Marie Fleming, declare that on June 6, 2013, I served and filed copies of the attached SCOPE OF WORK FOR PSEGS SUMMER 2013 PRE-CONSTRUCTION AVIAN FIELD SURVEYS, dated May 8, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: <http://www.energy.ca.gov/sitingcases/palen/compliance/>.

The document has been sent to the other persons on the Service List above in the following manner:

(Check one)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the U.S. mail with first class postage to those parties noted above as "hard copy required";
OR

Instead of e-mailing the document, I personally delivered it or deposited it in the U.S. mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: June 6, 2013



Marie Fleming