URS

DOCKET 07-AFC-8	
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February 28, 2008

Mr. B.B. Blevins
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Carrizo Energy Solar Farm (07-AFC-8)
Responses to Robin Bell's Questions
URS Project No. 22239472.018000

Dear Mr. Blevins:

On behalf of Ausra CA II, LLC (dba Carrizo Energy, LLC), URS Corporation Americas (URS) hereby submits the Responses to Robin Bell's Questions.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit the Responses to Robin Bell's Questions on behalf of Carrizo Energy, LLC.

Sincerely,

Angela Leiba
Project Manager

AL:ml

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Applicant's Responses to Robin Bell Questions – Carrizo Energy Solar Farm (07-AFC-8):

Cover Page: What is the time frame for the decision from the U.S. Army Corps of Engineers regarding their jurisdiction of the project site and is this timing considered in the schedule in the issues identification report?

The Applicant's consultant anticipates submitting the USACE Jurisdictional Determination request package to the Corps by February/March, 2008. Once the San Francisco Division of the Corps has the information, the Applicant's consultant expects a two to three week turnaround time for them to submit their decision to Headquarters. Headquarters can then take 15 to 60 days to return a final decision. Based on this timeframe, a final decision is anticipated in May or June, 2008.

1. **There are approximately 40 small acreage parcels consisting of 40 to 60 acres each within a two mile radius of the CSF site. Most of these are to the north and west of the plant site. Because of their small size, these parcels do not offer potential for significant income from typical local agricultural practices. Although these parcels are zoned agricultural and regardless of whether or not they are currently developed, their property value is derived from their potential to be developed as residential ranchettes. Since the visual impact and noise pollution from CSF will make these parcels less desirable as residential sites CSF will therefore affect the property value of the parcels. How will CSF's impact on these property values be mitigated?**

The Applicant is not aware of any studies showing long-term decrease in property values in connection with the construction of a nearby solar power plant. Studies on the impacts to property values associated with other types of power plants acknowledge that decreases in property values can result from perceptions of dangers associated with coal, gas, and nuclear power plants, such as emissions, odors, heavy machinery, accidental releases, and pollution, etc. However, solar power is clean and renewable and the perceived dangers associated with other types of power facilities are not likely to be associated with solar power plants. Therefore, this Project has the potential to be received positively by potential buyers.[1] Alternatively, the CESF may actually enhance property values by stimulating the local economy.

The CESF Project is located in an area zoned for agricultural uses as specified in the San Luis Obispo County General Land Use Plan. Similarly, the Project is predominantly surrounded by agricultural land uses. The minimum parcel size in the Agricultural Land Use Category is 40 acres. Only one primary residence is allowable per parcel in this category. Parcels consisting of less than 60 acres within a three mile radius of the CESF site are shown on Figure 1.

As discussed in Section 5.18, Cumulative Impacts, of the Project AFC, San Luis Obispo County provided a list of all permit applications with an application date of January 1, 2000 to July 17, 2007 within five miles of the CESF site. Of the 41 projects identified within a 5-mile radius, only 6

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[1] This response to Question 1 is based upon information contained in the following references: [1] DeLacy, P. Barton. *A LULU of a Case: Gauging Property Value Impacts in Rural Areas*. Real Estate Issues, Fall 2004. [2] McCluskey, Jill J. and Gordon C. Rausser. *Estimation of Perceived Risk and Its Effect on Property Values*. Land Economics, Vol. 77, No. 1 (Feb, 2001), pp. 42-55. [3] Sims, Sally. *The Effect of Public Perception on Property Values in Close Proximity to Electricity Distribution Equipment*. Oxford Centre for Real Estate Management, Oxford Brookes University, RICS Foundation. Cutting Edge, 2001. [4] Holm, Judith A. *Property Valuation and Radioactive Materials Transportation: Legal, Economic and Public Perception Analysis*. U.S. Department of Energy, WM-03 Conference, February 23-27, 2003, Tucson, AZ. [5] Gawande, Kishore and Hank Jenkins-Smith. *Nuclear Waste Transport and Residential Property Values: Estimating the Effects of Perceived Risks*. Received 8 September 1999; revised 26 January 2000. Available online 1 March 2002.

projects proposed new residential construction (i.e., single-family dwellings). The remaining 35 projects include minor construction projects, accessory uses, and renovations. Further, some of the listed projects have permits that have expired since their issuance. Based on these findings, it appears that these parcels are intended to be used for agricultural purposes. When assessing property value associated with agricultural lands, potential buyers ascribe more weight to the productivity of those lands, as well as potential impacts that would affect the viability of the land for agricultural production. The CESF facility will not impact the agricultural productivity of surrounding areas and therefore would have less of an impact on property values in the Agricultural Land Use Category than in a Residential Land Use Category.

2. **CSF indicated that this site was the best choice for their project. However, due to the impact it has on neighboring small acreage parcels, I question why a section of land a few miles to the north was not considered. Even though that area would require the expense of additional transmission lines to reach existing lines there would be no impact on residential sites because the area consists of all large acreage parcels. These parcels are typically 640 acres; their primary uses are agricultural production and are privately owned. Could this option be reviewed as a means to mitigate CSF's impact on residential sites?**

The site of the CESF was chosen using a careful screening process based on elements including availability, cost, direct normal solar insolation, slope, proximity to transmission, and biological characteristics. As discussed in Section 4, Alternatives, of the Project AFC, numerous other sites were considered during the site selection process.

The current CESF site is zoned agricultural, and besides the sensitive receptors documented in the AFC, is surrounded in large part by undeveloped land. There is little evidence to suggest that the impacts referenced above would not also be applicable in a different location. The review of another site's qualities, then its acquisition, followed by the required biological studies and other due diligence, would ultimately delay the project by a number of years.

3. **CSF's two condensers will have a significant visual impact on the Carrisa Plains. Can the design of these condensers be modified to lower their heights to mitigate their visual impact?**

The dimensions of the air cooled condensers listed in the AFC were based on specifications provided by their vendor, SPX Cooling Technologies. Air cooled condensers are necessary to limit the water usage of the Project. An air cooled condenser uses air instead of water to cool the steam used to create energy in the steam turbine. The steam must be cooled and returned to water prior to being reused. Reusing and conserving water is a significant parameter in the design of this Project. In order to cool the steam with ambient air during both cool winter months and hot summer months, an air cooled condenser must move large volumes of air with large fans located inside the air cooled condenser. The requirement to move a large volume of air thus requires a large structure. When power plants make the trade-off to conserve water and use an air cooled condenser, they must add this structure to the profile of the facility. The 115 foot height is a "standard" design specification used in many power plants in various locations. This same height facility is also used at the Sutter power plant and proposed for use at the Otay Mesa power plant. Based on current vendor specifications, the height of the air cooled condenser cannot be reduced.

4. **What is the process by which local property owners are supposed to negotiate landscaping with CSF? Will these negotiations be under CEC jurisdiction to insure each landowners needs are specifically met? If CSF will provide landscaping will they also provide water needs for the landscaping?**

The Applicant proposes that the sensitive receptors identified in the AFC be eligible for a tree planting allowance from Carrizo Energy, LLC, (Carrizo Energy) the details of which will be determined on a case-by-case basis. The allowance will be determined by the number of trees required and their cost, and will be based on the response to Data Adequacy Request 26 submitted with regard to landscaping, which reads as follows:

"The CESF project will be screened by a row of Leyland Cypresses (*cupressus leylandii*) spaced 8 feet apart, and a second row of California Junipers (*juniperus californica*), 8 feet behind the first row, which will be spaced 16 feet apart and staggered so as to be aligned with the gaps between the Cypresses. The row of Cypresses will be on the project side, and the row of Junipers will be on the resident's side. Both rows will be planted simultaneously."

The number of trees will be determined by recommendations to Carrizo Energy from landscaping experts, with whom Carrizo Energy will consult on a case-by-case basis. Because the number of rows and the spacing of the trees has been predetermined, the only variable in the number of trees required is the length of the line of trees; Carrizo Energy will coordinate with landscape architects and the residents to determine precisely how much of the resident's border should reasonably be sufficient to shield the Project.

Should the resident at the sensitive receptor point agree with the solution that Carrizo Energy and its chosen landscaping expert jointly recommend, the resident may contract the services of said landscaping expert, at Carrizo Energy's expense, to plant the trees and thus carry out the recommended solution. Once the trees have been planted, they become and will remain the sole property and responsibility of the resident.

Carrizo Energy has chosen the species of trees mentioned above based on the advice of a landscaping expert local to Carrizo Plains, taking into consideration the Carrizo Plains' climate, screening effects, and logistics of the trees' growth. Therefore, the allowance will be calculated based on the above scenario, with regard to species of tree and spacing, the single and only exception being in the event that Carrizo Energy's landscaping consultants recommend an alternative solution. Should the resident use the allowance to purchase any species of tree other than that suggested by Carrizo Energy, or to space them closer together (requiring more trees to cover the same length of space), or to deviate from Carrizo Energy's suggested mitigation, the resident may implement their alternative solution, so long as they are responsible for the incremental cost.

With regard to water, Carrizo Energy recommends the California Juniper, a native tree to the area, which will be able to sufficiently thrive without additional irrigation. The Cypresses are a faster growing species, and are meant only as a temporary mitigation while the Junipers develop. If the resident chooses, they may opt out of the row of Cypresses.

5. **Although we have not reached a formal agreement with CSF, they indicated our landscaping request of 190 eucalyptus trees would be acceptable. Since many property owners may have similar requests there may be a very significant planting of trees in an area where trees are not indigenous. Will there be any biological impact on the area because of this? And since these trees will be a means of mitigating CSF's visual impact, shouldn't their required water use be considered as a part of this project and accounted for in their usage estimates particularly due to the need for frequent watering in summer months?**

Carrizo Energy held informal brainstorming discussions with many local residents at the open house on November 13, 2007. However, Carrizo Energy only recently developed the framework for its landscaping plan, as submitted in response to Data Adequacy Request 26 on the subject (quoted in the response to question #4, above), and will require additional consultation with landscaping experts and CEC staff before making any formal commitments.

One species of tree chosen to mitigate the impact of the Project – the California Juniper – is, in fact, native to the Carrizo Plains area. As an indigenous species, it needs little maintenance and water, and should have no biological impact on the area. As there are a limited number of sensitive receptors identified in the AFC who will be eligible for landscaping allowances (see response to question #4, above), biological impacts caused by the planting of Cypresses will be insignificant.

Carrizo Energy has proposed trees that do not require extensive watering in order to reduce the amount of additional water used for landscaping purposes. Trees planted on the Project site will be included in the water use for the Project. Water requirements for trees planted at any residence are anticipated to be low.

6. **CSF submitted photos and simulations of the visual impact of the plant from Hwy 58. Their photos were taken looking west at the eastern boundary of the site. This view is much less impressive than the view looking east from the western boundary and therefore lessens the visual impact of the plant. Can they resubmit photos and simulations from the western boundary looking east so that the visual impact on eastbound traffic can be reviewed?**

The Applicant evaluated both views during initial analysis and felt both views were similar. The Applicant concluded that the KOP location submitted in the AFC had the potential for a variety of viewing angles because of the zig-zag in State Route 58 as the traveler approaches the southeast corner of the Project site. This KOP location was therefore selected as a "more sensitive" view. That being said, the Applicant will prepare an additional simulation from this alternative location and will submit the results as soon as possible.

7. **What will be CSF's construction noise at night? Will there be any limits to volume and hours of nighttime construction noise?**

The majority of construction activities will occur between the hours of 7 AM and 7 PM. However, during peak summer temperatures it will be necessary to pour some concrete foundations during morning and evening hours. Carrizo Energy envisions that such concrete pouring would commence at 5 AM and could persist until 9 PM. The primary foundations requiring these extended hours are part of the power block.

8. **What lighting will be required for construction at night?**

The lighting required for construction at night will be conventional task lighting. Such lighting consists of portable light stands such as those used in highway construction.

9. **Can the noise production of the plant be explained or simulated so that an average person, such a site neighbor without specific education in noise levels, may understand it? Specifically can clarification be provided of what the plants turbine sounds link in comparison to the normal country sounds of birds, cattle, trees, wind and etc...at the different sites noted?**

A simulation might be difficult to prepare, but the Applicant will attempt to describe the anticipated operational plant sounds with analogies to everyday sources. The Applicant and their consultant will review the anticipated octave-band spectrum and suggest such analogies or descriptions.

10. **Wind was one of the noises noted in the area noise study. The wind greatly varies on the plains from day to day thus affecting its noise level. Wind noise will obviously be much louder on a windy day rather than a calm day. What was the wind velocity at the times of the study?**

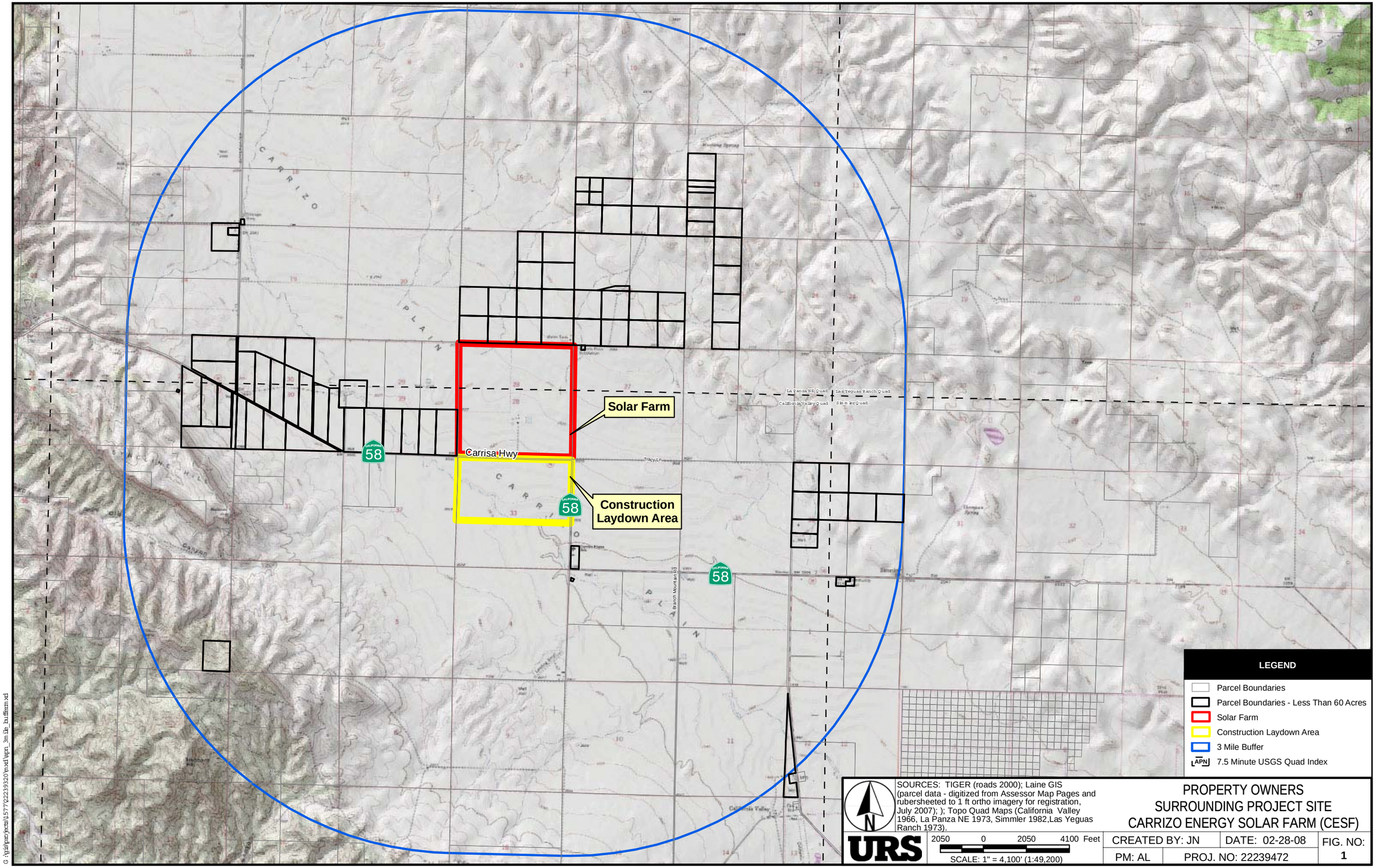
From a review of the field measurement notes, recorded wind velocities ranged from 0-12 mph. We agree that wind noise is louder on a windy day than a calm day, and the noise generated typically depends on the site conditions (i.e., are there trees, grasses, fences, poles, or other forms of wind resistance that create turbulence and hence noise). Further, on a very windy day (i.e., sustained wind conditions greater than 30 miles per hour [mph]), not only will wind noise be quite high, but the solar mirrors will be set to stowed or inoperative mode, and hence put less load on the steam generation plant and associated subsystems. In other words, wind noise rises dramatically with wind velocity, and plant operation noise might drop by a considerable degree once a wind velocity threshold is met.

11. **If Ausra's water use does affect the local water basin or alter the quality or quantity of water on parcels near the site, will they be required to bear any responsibility to resolve these issues for their neighbors?**

Because the anticipated daily water use is considerably less than that of using groundwater for irrigated agriculture, Carrizo Energy does not expect the water used by the Project to alter the quality or quantity of water that would otherwise be available on parcels near the site. Carrizo Energy and the CEC Staff will conduct additional analysis of water use in response to the comments we have received from residents.

12. **If during construction or operation, CSF exceeds their proposed calculations of noise, dust, traffic, or lighting who is the issue reported to? Will the CEC be monitoring these issues ongoing?**

CEC to provide response.



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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION *For the CARRIZO ENERGY SOLAR FARM* **PROJECT**	**Docket No. 07-AFC-8** **PROOF OF SERVICE** (Revised 2/5/2008)

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

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DECLARATION OF SERVICE

I, Kristen E. Walker, declare that on February 28, 2008, I deposited copies of the attached Responses to Robin Bell's Questions in the United States mail (FedEx) thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.