CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

October 17, 2011

DOCKET
11-AFC-2
DATE OCT 17 2011
RECD. OCT 17 2011

Clay Jensen, Vice-President
BrightSource Energy, Inc.
1999 Harrison Street, Ste. 2150
Oakland, CA 94612

RE: HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM (11-AFC-2), DATA REQUESTS, SET 1A (#1-50)

Mr. Jensen:

Pursuant to Title 20, California Code of Regulations, Section 1716, the California Energy Commission staff seeks the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

This set of data requests (Set 1A, #1-50) is being made in the areas of Air Quality (#'s 1-14), Alternatives (#'s 15-16), Socioeconomics (#'s 17-24), Traffic and Transportation (#'s 25-31), Visual Resources (#'s 32-37), Waste Management (#38) and Soil and Water Resources (#'s 39-50). Written responses to the enclosed data requests are due to the Energy Commission staff on or before November 16, 2011, or at such a later date as may be mutually agreeable. Subsequent sets of Data Requests (Set 1B and Set 1C) will contain questions for other technical disciplines, including Biological Resources and Cultural Resources.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, you must send a written notice to both the Committee and me within 20 days of receipt of this notice. The notification must contain the reasons for not providing the information, the need for additional time, and the grounds for any objections (see Title 20, California Code of Regulations, Sec.1716 (f)). If you have any questions, please call me at (916) 654-4894 or email me at mike.monasmith@energy.state.ca.us.

Sincerely,

Mike Monasmith
Project Manager

cc: Docket (11-AFC-2)
Proof of Service List

Technical Area: Air Quality
Author: Jacquelyn Leyva

BACKGROUND: AIR QUALITY PERMIT APPLICATION PROCESS

A Determination of Compliance (DOC) analysis from Great Basin Unified Air Pollution Control District (GBUAPCD) will be needed for staff's analysis. Staff will need to coordinate with the applicant and District to keep apprised of any air quality issues determined by the District during GBUAPCD's permit review.

DATA REQUESTS

1. Please provide copies of any official submittals and correspondence to or from the GBUAPCD that you have already submitted to the GBUAPCD if the substance is not contained in the AFC and any additional correspondence within 5 days of their submittal to or their receipt from the District. This request is to remain in effect until the Final Determination of Compliance is issued by the District.

BACKGROUND: CUMULATIVE IMPACTS

The applicant's cumulative impact analysis, including information presented in Section 5.1.5 of the AFC, does not seem to include a list of permitted projects from the GBUAPCD. Staff needs to make sure that there are no other large stationary sources that have recently been permitted, or are in the permitting process near the site. Also, because this site is located so close to the California and Nevada Border, please include all projects in the Clark County (NV), and Nevada Department of Air Quality Management, Bureau of Air Pollution Control.

DATA REQUESTS

2. Please confirm there are no projects so far from the GBUAPCD or other necessary agencies with large stationary source projects that will have permitted emissions, for projects with greater than 5 tons of permitted emissions of any single criteria pollutant. Include projects located within six miles of the project site that have been recently permitted, but did not start operation or are in the process of being permitted.
3. Please provide a cumulative impacts modeling analysis in consultation with energy commission staff, if necessary, based on the project list provided by GBUAPCD.

BACKGROUND: BASELINE SITE CONDITIONS

In order to evaluate the air quality impacts from this project the current baseline conditions of the project site need to be understood.

DATA REQUESTS

4. Please describe the types of activities that emit combustion and fugitive dust emissions on the site currently and the quantities of those emissions that occur from those activities.

5. Please describe whether those activities will be permanently discontinued when the project is completed and estimate the reductions from the current onsite baseline emissions.

BACKGROUND: CONSTRUCTION ACTIVITIES' EMISSIONS

The Application for Certification (AFC), table 5.1-31, page 5.1-48 states that construction equipment and activities may cause up to a maximum 375.7 pounds (lbs) per day of ozone precursors (349.8 lbs of oxides of nitrogen (NOx) and 25.9 lbs of volatile organic compounds [VOC]), and 190.9/37.8 lbs per day of particulate matter, PM10/PM2.5, respectively during construction of the project. It also states that the construction activities' related emissions are "…short term."; to imply that offset mitigation may not be needed. Also according to the AFC, page 5.1-47, construction of the facility will last for 29 months. During this time, the facility construction emissions (ozone precursors and particulate matter) can contribute to existing violations of the state ozone and PM10 air quality standards.

DATA REQUEST

6. Please identify additional mitigation measures to mitigate the impacts of construction related NOx, VOC and PM10/2.5 and PM10/2.5 precursor emissions. These may include a dust mitigation plan, Diesel-Fueled Engine Control, Dust Plume Response Requirement, Fugitive Dust Control, etc.

BACKGROUND: CONSTRUCTION EMISSIONS CALCULATIONS

The emission calculations use assumptions that require additional information to be confirmed by staff. The electronic version of Appendix 5.1F was only provided as a .pdf file. Staff needs the original spreadsheet file, with embedded calculations, to complete its review.

DATA REQUESTS

7. Please provide the spreadsheet version, in electronic format, of the Appendix 5.1F Construction Emission Worksheets with the embedded calculations intact.

8. The construction emissions and impacts should be evaluated for the actual Tiered engines to be used during construction. Please identify the Tier level (Tier 3, 2, 1 or 0) of all of the off-road equipment and associated emission factors. If Tier 3 engines are the only Tier levels assumed for the engines listed, please provide a survey of at least three construction equipment vendors that would be able to provide the Tier level that was assumed to determine the emission factors in the AFC. Other projects have not been able to obtain Tier 3 powered vehicles for specialty vehicles such as cranes and other types of equipment.

9. Please provide the input assumptions to obtain the OFFROAD and EMFAC2007 Model raw engine emission factors, the assumptions used to derive the equipment specific emission factors, and please provide the spreadsheets used to create the emission factors shown in Appendix 5.1F, with underlying equations intact.

BACKGROUND: OPERATING EMISSIONS - VEHICLE MITIGATION MEASURES

Staff is concerned that the overall criteria pollutant air quality benefit of the proposed project's solar energy production is being at least partially cancelled by the project's fuel use emissions. Additionally, the emission factors assumed in the applicant's emission calculations appear to be overly conservative as staff will recommend a condition requiring that all site dedicated vehicles be new model year vehicles, which meet model year California emission standards, at their time of purchase/lease/etc. Staff also needs to understand what additional dedicated onsite vehicle mitigation the applicant would be willing to stipulate to, assuming such mitigation is available and cost effective.

DATA REQUESTS

10. Please revise the emissions calculations for the onsite dedicated vehicle exhaust emissions assuming only new model year vehicles are used for all vehicles dedicated to the site.

11. Please identify whether or not the applicant would be willing to stipulate to a condition of certification that would require a review of available alternative low-emission vehicle technologies, including electric and hydrogen fueled vehicles, and use of those technologies to replace the proposed diesel and gasoline fueled vehicles used for operations maintenance if lower emission alternative technology vehicles are both available and cost effective.

BACKGROUND: OPERATIONS – EQUIPMENT REFUELING EMISSIONS

The AFC indicates that there will be an on-site diesel tank for vehicle refueling at the site for the mirror washing vehicles, fire pump engine, and back-up generators. The AFC does not mention the use of an onsite gasoline refueling tank.

DATA REQUESTS

12. Please indicate what will be proposed for refueling the dedicated on-site gasoline fueled equipment fleet.

13. Please indicate if the additional vehicle mileage required for refueling offsite, either driving vehicles to nearby retail gasoline stations or contracting fuel/lube trucks for onsite refueling, is considered in the total vehicle miles estimates and emissions estimates, or please correct these estimates accordingly.

BACKGROUND: GHG ANALYSIS

Sulfur hexafluoride (SF_6) is one of the most potent greenhouse gases. SF_6 is often used for insulating and cooling of electrical equipment such as transformers, circuit breakers and switchgear. The project is identified to have a significant amount of electrical equipment that could use SF_6. While some of the electrical equipment is noted to be air cooled, the AFC GHG analysis does not include comprehensive information for all electrical equipment regarding if or how much SF_6 would be used. Staff needs to understand if SF_6 is a potential GHG emission from this project and the emission inventory of SF_6.

DATA REQUEST

14. Please provide an estimate of the SF_6 onsite inventory and leakage emissions both in operation and construction phases to complete the GHG emission estimates.

Technical Area: Alternatives
Author: Jeanine Hinde

BACKGROUND

Table 6.2-3 very generally compares the impacts of the two site alternatives to the HHSEGS project that the applicant carried forward for analysis. For each environmental topic (except for Socioeconomics) under the column, “HHSEGS,” the impact conclusion is stated as “less than significant.” Given that a less-than-significant impact under the California Environmental Quality Act (CEQA) does not require mitigation, the impact conclusions in the table imply that no mitigation is required for any impact identified in the Application for Certification (AFC).

Mitigation measures are proposed in the AFC to reduce significant or potentially significant impacts for the following environmental topics:

- Air Quality
- Biological Resources
- Cultural Resources
- Hazardous Materials Handling
- Noise
- Paleontological Resources
- Soils
- Traffic and Transportation
- Visual Resources
- Water Resources
- Worker Health and Safety

On April 26, 2011, the Inyo County Board of Supervisors adopted the Renewable Solar and Wind Energy General Plan Amendment (GPA) (GPA No. 2010-03), which included establishing Renewable Energy Land Use Designation Overlay Zones. On September 6, 2011,Inyo County rescinded the general plan amendment that established the overlay zones. This action by the County causes the proposed project and the two alternatives to be inconsistent with Inyo County’s designated land use and zoning districts for the sites. This inconsistency causes a potentially significant impact to land use based on the Appendix G checklist in the CEQA Guidelines.

DATA REQUESTS

15. Please review the potential construction and operation impacts for the Calvada South and Trona alternative sites, and revise the estimated impact conclusions, given the absence of the Inyo County Renewable Energy Land Use Designation Overlay Zones.

16. Please review the potential construction and operation impacts of the HHSEGS project at the proposed site, and revise the estimated impact conclusions, given the absence of the Inyo County Renewable Energy Land Use Designation Overlay Zones.

Technical Area: Socioeconomics
Author: Lisa Worrall

BACKGROUND: FIRE PROTECTION AND EMERGENCY RESPONSE

The project site is within the Southern Inyo County Fire Protection Department (SIFPD) jurisdiction. However, because SIFPD has limited resources (mostly volunteer staff) and the distant location of the project site from other fire stations in Inyo County (one station in the town of Tecopa and a temporary location in the area known locally as Charleston View), additional assistance would be brought in from the town of Pahrump, Nevada. According to the AFC, SIFPD has mutual aid agreements with Pahrump Valley Fire-Rescue Service (PVFRS) (Pahrump) and Nye County Fire Department (Pahrump) as part of Nye County Emergency Services (NCES), as well as one with Clark County (Las Vegas, Nevada) for responses requiring more assistance (Socioeconomics Section, pg. 5.10-17). Additional assistance can also be obtained from Round Mountain/Smoky Valley Fire Services in Nye County (Worker Health and Safety Section, pg. 5.16-21). The Bureau of Land Management (BLM) has a fire station located in Pahrump that covers all federal land including the project area in Inyo County. Their station in Apple Valley, CA would be the next responding station after SIFPD's two stations and Pahrump Valley Fire (Worker Health and Safety Section, pg. 5.16-21).

The AFC indicated the first response will come from a SIFPD fire response crew (volunteer) in the Charleston View area, but it is unclear if the fire response crew would be the first responder in case of a medical emergency on the project site. The AFC provides little information about who would be the first responder for medical emergencies. It would appear from the information in the AFC that PVFRS is equipped for such an emergency, but whether they would have the responsibility of being the first responder is not discussed. The AFC states that project operations staff would be trained as first responders, but no details are provided describing what their skill level would be or what their ability would be to respond to different types of emergencies at the project site (Socioeconomics Section, pg. 5.10-30).

The AFC notes that because of the remote nature of the area, the construction phases of the project may have minor impacts on fire resources and that the applicant is working with the Inyo County fire department to understand requirements and reduce any impacts to services (Socioeconomics Section, pg. 5.10-27).

So that staff can assess the ability of the first responder to respond to medical emergencies at the project site while maintaining acceptable response times, service ratios or other performance objectives, additional information is needed, as identified below.

DATA REQUESTS

17. Please identify the first responder for medical emergencies at the project site, plus any other responders as part of a mutual aid agreement.

18. Please clarify what training or skill level plant operations staff would have as "first responder." Would staff merely be an on-site point person to initiate a call for

emergency response, or would staff be trained to handle certain emergencies on a triage-type basis? Please describe the type of incidents (emergency medical, fire, and/or hazardous materials incidents) the plant operations staff, as "first responders" would respond to?

19. Please provide the results of the applicant's work with the SIFPD to understand its emergency service requirements and to reduce any impacts to emergency services. Please describe the issues the applicant discussed with the SIFPD and any steps the applicant has taken to reduce impacts related to the provision of emergency medical services during project construction and operation, and any agreements between the applicant and SIFPD regarding provision of emergency services to the project site.

BACKGROUND: LAW ENFORCEMENT

The project site is within the jurisdiction of the Inyo County Sheriff's Office and has one sheriff station (#15) located on Highway 127 in the town of Shoshone. According to the Worker Health and Safety section in the AFC, the response time from Shoshone is approximately 30 minutes to 1 hour (Worker Health and Safety Section, pg. 5.16-22). In the Socioeconomics section of the AFC, the response time for officers on patrol or on call in the service area ranges between 0.5 hour to 3 hours and a response from the station would be 1.5 hours to 2 hours (Socioeconomics Section, pg. 5.10-16). Energy Commission staff reviewed the Inyo County General Plan and did not find any minimum response time standard or other performance measure for law enforcement services. The AFC notes that because of the remote nature of the area, the construction phases of the project may have minor impacts on law enforcement and that the applicant is working with the Inyo County Sheriff's Office to understand their requirements and reduce any impacts (Socioeconomics Section, pg. 5.10-27).

Staff noted the AFC did not discuss proposed on-site security measures during project construction and operation. The only reference to security was in the discussion of access roads and drive zones (Project Description Section, pgs. 2-4 and 2-5). The discussion identifies a 12-foot-wide unpaved path that would be constructed on the inside perimeter of the project boundary fence for use by HHSEGS personnel to monitor and maintain perimeter security.

So that staff can assess the ability of the Inyo County Sheriff's Office to respond to law enforcement calls at the project site while maintaining acceptable response times, additional information is needed, as identified below.

DATA REQUESTS

20. Please clarify the estimated response time from the station in Shoshone to the project site. Is the estimated response time 30 minutes to 1 hour or 1.5 to 2 hours?

21. Given the remote location of the project site, the estimated response time for law enforcement calls at the project site, and the current unknown requirements of the Sheriff's Department, please provide a description of any security measures (e.g.

security access gates, security personnel, video surveillance, etc.) proposed for the project that may deter or reduce incidents requiring law enforcement response.

22. Please provide the results of the applicant's work with the Inyo County Sheriff's Department to understand its law enforcement service requirements and to reduce any impacts to law enforcement services.

23. Please describe the issues the applicant discussed with the Inyo County Sheriff's Department and any steps the applicant has taken to reduce impacts related to the provision of law enforcement services during project construction and operation, and any agreements between the applicant and the Inyo County Sheriff's Department regarding the provision of law enforcement services to the project site.

BACKGROUND: CONSTRUCTION AND OPERATION WORKFORCE

Table 5.10-16 in the AFC provides estimates of the construction workforce by month but does not include the specific trades or crafts required on a monthly basis for project construction. Table 5.10-18 in the AFC shows the available labor by specific trade and craft for Inyo County. For staff to determine whether the available workforce, as specified by trade or craft would be adequate for project construction, please provide the additional information identified below.

DATA REQUEST

24. Please provide a table similar to Table 5.10-16 in the AFC that identifies the number of construction workforce by craft or trade needed per month for project construction. Please provide the same table for the operation workforce.

Technical Area: Traffic and Transportation
Author: Candace M. Hill

BACKGROUND

Title 14, Aeronautics and Space, Code of Federal Regulations, Part 77(9) requires an Applicant to notify the Federal Aviation Administration (FAA) of the construction of structures with a height greater than 200 feet AGL. The HHSEGS AFC Section 2.0 - Project Description, page 2-7, states that the proposed project would include a solar power tower structure approximately 620 feet tall. The solar receiver steam generator (SRSG) located at the top of the solar power tower structure would be approximately 130 feet tall, resulting in an overall height of approximately 750 feet.

Energy Commission staff needs information regarding the applicant's completion of FAA Form 7460-1, Notice of Proposed Construction or Alteration and an applicant-secured FAA Determination of No Hazard to Air Navigation. At this time, staff has not been provided with a completed FAA Form 7460-1 or an applicant-secured FAA Determination of No Hazard to Air Navigation. Therefore, proposed impacts related to inconsistency with FAA Form regulations are unknown at this time. This information is necessary prior to Final Staff Assessment publication.

DATA REQUESTS

25. Please provide a schedule for completion of the FAA 7460-1 requirements.

26. Please provide a copy of the applicant's completed FAA form and transmittal letter to FAA.

27. Please provide a copy of the FAA's determination.

BACKGROUND

According to the AFC, the light reflected from the boiler would introduce two areas of glowing light in the daytime sky. These areas of glow would represent new elements in the daytime sky that would be seen by travelers on the surrounding transportation corridors (Interstate 15, State Route 127, Tecopa Road and State Route 160), residents in Charleston View, and residents in the rural residential area south of Pahrump.

If a heliostat were to malfunction and project its beam laterally across the solar plant it would presumably pass beyond the plant boundary and present an actinic hazard, including retinal damage, to observers on the ground, including plant personnel. Systems controlling the heliostats are described (page 5.13-23), but discuss operational issues rather than heliostat malfunctions.

DATA REQUESTS

28. Please describe the range of movement (beginning and ending positions) for the heliostats during normal and emergency operation modes and during malfunction including the following (and any others) as applicable:

    - Night stowage position.
    - Morning startup.
    - Evening shutdown.
    - Reducing solar input to avoid overheating the receiver.
    - Load (power output) reduction.
    - Loss of AC Station Power.
    - Mirror washing.

29. Please address potential solar radiation exposure hazards (in terms of total reflected solar energy (kW/m^2) and the reflected luminance in lux) and mitigation measures for normal and emergency operation modes as applicable for both individuals (including in vehicles and residents) and the effects to wildlife.

30. Please describe the control mechanisms, including availability of on-site maintenance personnel, which will avoid heliostat movements or malfunctions that may produce hazards to human and wildlife.

BACKGROUND

The AFC discusses compliance with Federal Aviation Administration (FAA) aviation safety lighting for the towers. The discussion in the Visual Resources Section (page 5.13-22) states that “This lighting will consist of flashing white strobe lights that will be installed at the tops of the towers and at three levels on the tower shafts. Because of the large diameter of the towers, four lights will be installed at each level. These lights will be operated both at night and during the day.”

DATA REQUEST

31. Please provide revised Figures 2.2-2a and 2.2-2b-Solar Plant 2, Elevation or a new figure showing the elevations at which the aviation safety lighting will be installed and a symbol for the lights in the legend. Indicate how this meets FAA regulations.

Technical Area: Visual Resources
Author: Melissa Mourkas, ASLA

BACKGROUND

In consultation with Energy Commission staff on April 27 and August 2, 2011, it was agreed that the visual analysis would benefit from an additional Key Observation Point (KOP) on the historic Old Spanish Trail. Importantly, the need for an additional KOP was supported by comments made by the Pahrump Paiute tribe members during these pre-filing meetings.

DATA REQUEST

32. Please provide a new KOP-7, on the location of the Old Spanish Trail after consultation with the Tecopa Chapter of the Old Spanish Trail Association and Energy Commission Staff. The view should be nearby to, or at the same location of, the southern Charleston View location, as was discussed during the April 27, 2011 meeting. A staff conversation with the Old Spanish Trail Association Tecopa Chapter President, Jack Prichett, indicated that several segments of the trail in the Pahrump Valley, and specifically the Charleston View area, have been previously identified and mapped, and may differ from that shown on DeLorme maps or other available maps. Please provide a photograph of existing conditions and a visual simulation of the project from this KOP.

BACKGROUND

During the August 2, 2011, pre-filing outreach meeting with the Native American constituency from the Pahrump Paiute and Las Vegas Paiute Tribes, interest was indicated in having a KOP view from the Nopah Wilderness Range toward the project site.

DATA REQUEST

33. Please provide a new KOP-8, in the Nopah Wilderness Range, after receiving comments from the Pahrump and Las Vegas Paiute Tribal officials and after consultation with Energy Commission Staff. The view may or may not be similar to the view previously identified by CH2MHill as VP6. The view from the Nopah Wilderness Range is intended to represent the Native Americans' visual area of concern looking toward the project site. Please provide a photograph of existing conditions and a visual simulation of the project from this KOP.

BACKGROUND

Section 3.2 Transmission System Engineering, Onsite Facilities, describes the onsite transmission lines from Solar Plants 1 and 2. Figure 3. 2-1, Onsite Gen-tie Lines, shows the path of the transmission lines as they exit the Solar Plants and make their way to the switchyard. Section 3.2.1 describes the length of proposed overhead, above-ground transmission lines as 1.9 miles from Solar 1 and 0.6 mile from Solar 2.

DATA REQUESTS

34. Please update Figure 3.2-1 or provide a new figure showing the location(s) of the proposed onsite transmission poles and indicate approximate spacing in feet. (This information is required by other technical disciplines, including Biological Resources, Cultural Resources, Transmission System Engineering and Visual Resources).

35. Please provide a revised simulation for KOP-3 (view from the Proposed Saint Therese Mission) that includes the onsite transmission poles and lines.

BACKGROUND

Table 5.13-4 in the AFC shows a solar tower height of 620 feet. The text on page 2.7 of the AFC, page 5.13-20 of the AFC and verbal presentations have indicated a height of 750 feet.

DATA REQUEST

36. Please confirm the height of the proposed solar towers including Solar Receiver Steam Generator (SRSG) represented in the AFC visual simulations.

BACKGROUND

The view from KOP-1 represents the motorist's perspective from westbound traffic on Tecopa Road (in Nevada). The AFC states that the undulating topography in the middle ground would block any direct view of the solar collectors, and therefore no adverse effects of glint or glare will occur. However, there may be other locations along Tecopa Road (travelling in either direction) where the topography will allow for direct views of the solar collectors, and therefore the presence of glint or glare may have an adverse affect.

DATA REQUEST

37. Please provide a discussion of potential mitigation measures to eliminate or minimize the potential for adverse glint and glare effects to motorists traveling along Tecopa Road. Mitigation measures might include a solid wall, fencing or other landscape screening elements, such as plantings. These measures would occur on site, and may include the eastern, western and southern property boundaries.

Technical Area: Waste Management
Author: Ellie Townsend-Hough

BACKGROUND

The Phase I Environmental Site Assessment lists a small portion of the proposed project site that was used as an orchard. The orchard was located in the southern most portion of the site. The historical use of this area suggests that pesticides and herbicides were used on the site.

The Phase I Environmental Site Assessment (ESA) did not identify any recognized environmental conditions, thereby eliminating the need for a Phase II ESA. Although a Phase II ESA was not deemed necessary, staff believes that given these past land uses and proposed construction the project owner should verify that no harmful concentrations of any contaminants will be encountered at the proposed project site.

DATA REQUEST

38. Please provide detailed information concerning the orchard: include type of crops, dates of operation, approximate size of the orchard, list of structures associated with the orchard, and possible pesticides or herbicides used at the site.

Technical Area: Soil and Water Resources
Authors: Mike Conway and Marylou Taylor

General Background

The applicant proposes to meet Hidden Hills Solar Energy Generating System (HHSEGS) project water needs with groundwater from the Pahrump Valley groundwater basin. The project would require up to 288 acre-feet per year (AFY) for project construction and 140 AFY for operation. The Pahrump Valley groundwater basin is currently in severe overdraft (HHSEGS 2011). Absent project effects, basin water levels directly beneath the proposed site could fall approximately 20 feet over the next 30 years from existing agricultural and domestic uses. Superimposed project pumping could result in a potential cumulative water level drop of up to 50 feet of total drawdown at the project site over the next 30 years.

The current pumping of the groundwater basin is resulting in significant impacts. Preliminary review of the AFC and supporting documentation indicates the additional proposed project pumping will also result in significant direct and cumulative impacts to other users in the basin. The impacts would occur in the form of local drawdown effects on adjacent well owners and an ongoing reduction in basin storage. Other potential impacts include subsidence and effects on springs supported by groundwater.

Pahrump Valley Groundwater Basin Overdraft and Mitigation

BACKGROUND

Both California and Nevada residents share the Pahrump Valley groundwater basin. Settlement and water use in the basin has occurred primarily on the Nevada side of the basin. Many of the water rights in the Nevada side of the basin were established prior to implementation of Nevada's statewide groundwater water rights system, where land owners must acquire a water use permit prior to pumping. Domestic users do not require water rights and therefore, total basin demand is not accurately described by water rights. Furthermore, a significant portion of the water rights in the Pahrump Valley are not currently being exercised. Nevada has established a safe yield for the Pahrump groundwater basin of about 12,000 AFY. The current pumping of the basin likely far exceeds this safe yield.

California has no such water rights system. In California, overlying landowners have the right to install wells and pump groundwater for reasonable and beneficial uses. Preliminary review of available information shows there is little to no water level data available for the California side of the basin, in comparison to data from the Nevada portion of the basin. To mitigate impacts, the applicant proposes to secure water rights of up to 400 AFY for the life of the project through purchase from existing water rights holders in Nevada. The availability of water rights that could be retired and thus be used to offset project water use is unclear. The terms of the water rights purchases and how much water use they would actually retire may also be difficult to resolve and could put in to question the viability of the proposed mitigation.

Viable mitigation opportunities are further complicated by the price of water rights in the Pahrump Valley basin. The Nye County Water Resources Plan claims that the fair market value of water in the Pahrump Valley is $7,000 per acre-foot (Buqo 2004). With an estimated yearly average for water use of 150 acre-feet, the cost of water rights required to mitigate project impacts to basin storage may therefore be as high as $1,000,000.

Opportunities to offset project water use and reduce the project's contribution to overdraft may exist on either side of the state line. The potential for offset is far more likely to be available in Nevada given the current higher water use and system of water rights in Nevada, and lack of groundwater management in California. Agricultural land-use retirement may be a source of water use mitigation in both California and Nevada.

Data for characterization of the Pahrump Valley groundwater basin is limited. Staff will continue to research the availability of water use and basin data for both the California and Nevada side of the Pahrump Valley groundwater basin. Additional analysis could lead to additional or alternative mitigation measures not currently considered or defined.

DATA REQUESTS

39. Please provide documentation showing what water rights are available for purchase to offset project water use and provide a report discussing the status of negotiations to purchase water rights.

40. Please describe other viable mitigation measures that may exist in California or Nevada to offset project water use including retirement of land used for agricultural activities.

41. Where mitigation does not include purchase of water rights, please include pump records, electricity records, fuel consumption records, crop production records, or other means of verifying water use. Include letters of intent from property owners, contractual agreements, deed restrictions, proof of purchase, or other documentation that provides assurance that mitigation can be implemented and measured.

Local Drawdown Mitigation for wells in the Pahrump Valley Groundwater Basin

BACKGROUND

The AFC states that the applicant will mitigate for local drawdown impacts by lowering pumps or re-drilling the wells of local land owners. The applicant has not provided information which shows which wells would be affected by project pumping and what the potential change in well yield would be. Staff needs additional information to characterize typical well construction in the valley and estimate what magnitude of drawdown will result in a significant impact to other pumpers in the basin.

DATA REQUEST

42. Please provide all available well logs and information about wells within a 0.5-mile of the boundary of the 1-foot drawdown contour interval of the most conservative cone of depression (Scenario 2, Appendix 5.15G, Groundwater Modeling Technical Memorandum, July 20, 2011 (Cardno Entrix 2011).

Subsidence

BACKGROUND

The AFC describes subsidence fissures on site and in the general site vicinity. Researchers dePolo et al (dePolo 1999) have mapped similar fissures in the Pahrump Valley and indicate they are likely related to subsidence due to groundwater withdrawal. It is possible, given past and current groundwater pumping in the basin, that subsidence could be continuing and project pumping could exacerbate subsidence conditions. It is unclear, however, where subsidence is occurring on the site and whether any resources or structures could be affected by subsidence. Staff needs additional information on the regional distribution and rate of subsidence and identification of resources that could be impacted by subsidence.

DATA REQUESTS

43. Please provide a map and description of all structures that exist within 0.5-mile of the boundary of the 1-foot drawdown contour interval of the most conservative cone of depression (Scenario 2, Appendix 5.15G, Groundwater Modeling Technical Memorandum, July 20, 2011 (Cardno Entrix 2011)).

44. Please provide a map showing the mapped and regional patterns of subsidence. Include on the map indications of areas where the maximum and average amounts of subsidence have occurred and future anticipated trends of subsidence may occur.

45. Please describe how much subsidence may occur in the area where existing structures may be affected.

46. Please discuss whether there could be any change in surface gradients that would change the direction and volume of surface water drainage that could affect existing structures or other resources.

47. Please discuss any monitoring and mitigation that may be required to address subsidence that may be exacerbated by project pumping.

Springs

BACKGROUND

Staff understands there are numerous springs in the Pahrump Valley Groundwater Basin that have historically flowed under artesian conditions. Current studies show water level declines in the groundwater basin have resulted in termination of flow to many springs. Although water levels have declined and springs have ceased to flow, it is possible water levels are still shallow enough to support important groundwater-dependent vegetation systems. Staff is concerned that if water level declines accelerate, vegetation may be impacted at historic spring sites. Staff needs additional information on whether groundwater-dependent vegetation is present at the spring sites, and whether water levels could be affected by the project such that groundwater-dependent vegetation could be impacted.

DATA REQUESTS

48. Please provide a map and description of all springs that exist within a 0.5-mile of the boundary of the 1-foot drawdown contour interval of the most conservative cone of depression (Scenario 2, Appendix 5.15G, Groundwater Modeling Technical Memorandum, July 20, 2011 (Cardno Entrix 2011)).

49. Please describe whether declining water levels attributable to project pumping would affect groundwater-dependent vegetation.

50. Please describe what monitoring and mitigation would be proposed if it is found groundwater-dependent vegetation could be significantly impacted.

References

HHSEGS 2011. Hidden Hills Solar Electric Generating System, Application for Certification. Prepared by CH2MHill, August, 2011.

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