



CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916.286.0224
Fax 916.614.3424

March 30, 2012

427930.DI.DR

Mike Monasmith
Senior Project Manager
Systems Assessment & Facility Siting Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Subject: Data Response, Set 1A-2
Hidden Hills Solar Electric Generating System (11-AFC-2)

Dear Mr. Monasmith:

On behalf of Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC, please find attached electronic copies of Data Response, Set 1A-2.

Hard copies will be sent out today. Please call me if you have any questions.

Sincerely,

CH2M HILL

A handwritten signature in blue ink, reading "John L. Carrier".

John L. Carrier, J.D.
Program Manager

Encl.

c: POS List
Project file

DOCKET
11-AFC-2

DATE MAR 30 2012

RECD. APR 02 2012

Data Response Set 1A-2

Hidden Hills

Solar Electric Generating System

(11-AFC-2)



Application for Certification
Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC

March 2012

With Technical Assistance from



Hidden Hills Solar Electric Generating System (HHSEGS)

(11-AFC-2)

**Data Response, Set 1A-2
(Response to Data Request 40)**

Submitted to the
California Energy Commission

Submitted by
**Hidden Hills Solar I, LLC; and
Hidden Hills Solar II, LLC**

March 30, 2011

With Assistance from
CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

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Attachment

Attachment DR40-1 Response to BLM’s letter dated March 12, 2012

Introduction

Attached is Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC (collectively, “Applicant”) supplemental response to the California Energy Commission (CEC) Staff’s data request 40 for the Hidden Hills Solar Electric Generating System (HHSEGS) Project (11-AFC-2). The CEC Staff served these data requests on October 17, 2011. The Attachment submitted in response to the data request is numbered to match the data request number.

Soil and Water Resources (40)

Background - Pahrump Valley Groundwater Basin Overdraft and Mitigation

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 REQUEST

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.

Response: Applicant's previous response to Data Request 40 identified possible mitigation measures for the HHSEGS Project. Applicant stated that it anticipated submitting a water mitigation

plan in January 2012, but that the water mitigation plan would be developed with guidance from the agencies.¹ To that end, in January the BLM held a meeting/conference call on water issues in which the agencies, including Staff and the Applicant, participated. At that meeting, the BLM committed to developing mitigation recommendations for the HHSEGS Project. The BLM's recommendations were submitted to Staff in a March 12, 2012 letter, and received by the Applicant on March 15. In light of the recent guidance from the BLM and the results of the aquifer performance test conducted by Applicant in February 2012, Applicant has proposed a mitigation strategy that considers the specific conditions associated with the Project. The proposed mitigation strategy, in response to the BLM's March 12, 2012 letter, is set forth in Applicant's March 29, 2012 letter, which is included as Attachment DR40-1.

¹ 2/28 RT 60:1-25.

Attachment DR 40-1
Response to BLM's Letter



BrightSource

March 29, 2012

Amy Lueders, Nevada State Director, BLM
James G. Kenna, California State Director, BLM
1340 Financial Boulevard
Reno, Nevada 89502-7147

RE: 2801 (LLNV930) – Water supply aspects of BrightSource Energy Hidden Hills Solar Electric Generating Station (HHSEGS)

Dear Ms. Lueders and Mr. Kenna:

This letter is provided in response to the letter dated March 12, 2012 in which you provided water-related concerns and suggested mitigation measure options in the spirit of minimizing impacts to Bureau of Land Management (BLM) water-dependent public trust resources in the vicinity of the BrightSource Energy (BSE) Hidden Hills Solar Electric Generating Station (HHSEGS) project site.

Recently collected hydrogeologic data demonstrates that the water use for the project will have minimal effects on the aquifer and those minimal effects will be limited to the project site. In view of these data, we wish to propose a mitigation strategy that considers the specific conditions associated with the proposed project.

In an effort to better understand the aquifer response to groundwater usage associated with project needs, BSE conducted an Aquifer Performance Test (APT) using existing, on-site wells. The test was conducted for 4.5 days at the same flow rate that would be pumped during project operations. Monitoring of on-site conditions was conducted at 8 wells in addition to the 2 pumping wells. Offsite monitoring was also conducted at the BLM monitoring well at Stump Springs.

As more fully presented in the APT Technical Report to be provided to CEC and BLM in the near future, the pumping required to support this project will not produce measureable drawdown in the aquifer beyond the limits of the project site. During the course of the APT no drawdown was detected at any monitoring well at distances greater than 200 feet from either of the 2 pumping wells. Based upon detailed aquifer analysis, the drawdown magnitude during the life of the project would be 4 feet or less at a distance of 200 feet from each well. The radius of influence (line of zero drawdown) would be within 1,500 feet of each proposed well.

The water supply for the project will come from three new wells to be located 1,500 feet or more north of Tecopa Road and in locations selected to have favorable aquifer properties. Based on the data collected during this recent APT, the new production wells will not produce measureable drawdown at the site boundaries. The planned water demand for the project is a maximum of 140 acre-feet per year (AFY) pumped from the aquifer underlying the project site. Based upon the APT and the planned location of proposed wells, the project-associated pumping will only reduce water levels beneath the project site and will not induce drawdown outside of California. Furthermore, based upon biological surveys of the project site, there is no groundwater-dependent vegetation within the site that can be affected by the drawdown.

Additionally, based upon long-term water level monitoring conducted by Nye County, Nevada, a hydrologic barrier is likely present along the California-Nevada border, roughly collinear with the so-called State Line fault and the parallel alignment of spring mounds. Historical water levels display markedly different water level characteristics on either side of the fault year-over-year during the period of record. Geologic studies conclude that the fault impedes cross-fault groundwater flow and compartmentalizes the basin-fill aquifer into sub-basins. This hydrologic barrier minimizes the potential long-term effects in Nevada, including Stump Springs, of what is anticipated to be zero off-site drawdown associated with the HHSEGS project and significantly reduces any impacts to the project site from over pumping in the Pahrump area. Based upon available data, the deep carbonate-rock aquifer which is part of the Death Valley Regional Groundwater Flow System (DVRGFS) is a confined aquifer with minimal interaction with the valley fill aquifer. No wells penetrate the carbonate aquifer around the project site, but piezometer and spring data from basins to the north of Pahrump Valley indicate that carbonate aquifer has a significant upward gradient, suggesting the presence of a confining layer between the basin-fill and carbonate aquifer. This condition greatly reduces the likelihood that small magnitude and localized drawdown in the basin-fill aquifer could affect the conditions in the DVRGFS.



In summary:

1. BSE has conducted testing that describes the potential impacts to the aquifer beneath the project site;
2. There are geologic features that would inhibit or make impossible impacts to areas in Nevada;
3. The impacts of project pumping will be limited to within the project boundary;
4. As described in the APT Technical Report, there is no groundwater-dependent vegetation within the site that can be affected by the drawdown.

In consideration of the localized effect of the proposed groundwater pumping, and the potential existence of a flow barrier northeast of the Nevada state line, BSE proposes the following mitigation for the project:

- (a) **Regional groundwater monitoring.** BSE will continue to monitor its onsite groundwater conditions following the pumping test and will install permanent water level data recorders in several on-site monitoring wells and maintain them for the life of the solar project. BSE will also contribute to on-going water level monitoring efforts currently being conducted and planned for expansion by Nye County and BLM. This monitoring will be conducted to improve the understanding of the groundwater conditions in the vicinity of the project site and between the project site and sensitive resources such as Stump Springs. As stated above, project pumping has no potential to affect Stump Springs or other groundwater-dependent vegetation, and with mitigation item (b) below, monitoring of mesquite stands and associated action triggers are not required for this project
- (b) **Purchase and retirement of water rights.** BSE will endeavor to identify and acquire water rights from one or more existing water right holders willing to sell a quantity of water rights of similar amount to the anticipated annual groundwater consumptive use of the proposed project. A preference will be for rights that have been recently used beneficially and which are senior in status. Consideration will also be made for water rights in the near site vicinity, to the extent that such rights can be identified. Because many of the water rights available for purchase are in the Pahrump area, and only limited options are likely available near the site, an opportunity exists to acquire a portion of the offsetting water rights in each of the areas thereby distributing the benefits to both local and regional aquifer situations.

BSE recognizes the critical value of water in the Pahrump Valley and the importance of the Amargosa River Wild and Scenic Area. Accordingly, BSE is willing to provide financial support for on-going research to understand and protect these resources. To the extent that water rights cannot be acquired at commercially reasonable prices, the amount of this contribution would be correspondingly increased.



Please note however, that given the lack of effect of this project on the DVRGFS as documented in the APT, we do not believe that it is appropriate or necessary to use the USGS DVRGFS model to evaluate changes in the flow system from the project. The model is regional in nature and is too coarse to simulate pumping at the project site. Based on the APT test results, the limited cone of depression from one production well will fit within a single grid cell of the model. The pumping rate for the project is so small in comparison to the fluxes in the model that our experts believe that any changes in the model after including the project will be within the statistical error range of the model. While we are pleased to contribute data and financial resources to support model refinements, we do not believe it is the appropriate tool to evaluate the lack of impacts from the project.

Thank you for your thoughtful suggestions for mitigation measures for this project. We trust that in view of the aquifer data collected by the APT test, you will accept our suggested mitigation measures. We look forward to working with you both to protect the critical resources of this unique area.

Sincerely,

A handwritten signature in blue ink, appearing to read "Clay Jensen", with a large, sweeping initial "C".

Clay Jensen
Senior Director, Project Development
BrightSource Energy Inc.