

CALIFORNIA ENERGY COMMISSION

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January 9, 2012

DOCKET**11-AFC-2**DATE Jan. 09 2012RECD. Jan. 09 2012

Clay Jensen, Senior Director
BrightSource Energy, Inc.
1999 Harrison Street, Ste. 2150
Oakland, CA 94612

**RE: HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM (11-AFC-2), DATA
REQUESTS, SET 2A (#'s 136-143)**

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 2a, #'s 136-143) is being made in the areas of Air Quality (#136), Alternatives (#'s 137-140) and Soil and Water Resources (#'s 141-143). Written responses to the enclosed data requests are due to the Energy Commission staff on or before February 9, 2012, or at such a later date as may be mutually agreeable.

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: GHG EMISSIONS FROM PUMP MIRROR WASHERS**

The applicant expects facility GHG emissions to be 99,700 tons/yr, just under the PSD trigger threshold of 100,000 tons/yr. However, the applicant does not include GHG emissions from mirror washing activities in total facility emissions although they estimate washing activities at a large fraction of boiler emissions, 25,673 tons/yr. US EPA indicates that the vehicle portion of the washing operations may not be required for this threshold determination because mobile sources are exempt from GHG calculations, but the portion of GHG emissions from powering the water pumps for washing purposes must be included.

DATA REQUESTS

136. Staff needs the applicant to break down total annual GHG mirror washing emissions into one component for transporting the washing apparatus, and a separate component to power the mirror washing pumps.

Technical Area: Alternatives

Author: Jeanine Hinde

BACKGROUND

On November 17, Data Requests Set 1C was submitted to the project applicant, which included a request for additional information on the applicant's decision to reject the Sandy Valley alternative site (Data Request #77). Responses to this data request were received on December 19. In those responses, the applicant reiterated information from the Application for Certification (AFC) and stated that the Sandy Valley alternative site "was not carried forward due to the infeasibility of acquiring site control for the necessary acreage due to the vast number of private landowners."

Staff observes that additional information is necessary to complete an analysis that complies with the requirements of the California Environmental Quality Act (CEQA), including Section 15126.6 of the CEQA Guidelines (State CEQA Guidelines). The discussion of alternatives to the proposed project must "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 Cal. Code Regs., § 15126.6[a]). The State CEQA Guidelines further require that the discussion shall be focused on alternatives "which are capable of avoiding or substantially lessening any significant effects of the project, *even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly*" [emphasis added] (14 Cal. Code Regs., § 15126.6[b]).

The applicant's responses to Data Request #77 include Figure DR77-1, which provides partial information on private land ownership in the Sandy Valley area. Public lands generally surround an area where eight landowners are identified. Ownership for many properties within the area is not provided. No acreage data is provided in the text or the figure. The information provided in Figure DR77-1 is incomplete and does not provide a sufficient basis for the conclusion of infeasibility.

Alternatives Table 1 includes information provided by the project applicant for the Sandy Valley alternative site. The table was part of Data Request #77; text has since been added (*italic type*) to show new information provided by the applicant in their December 19, 2011 Data Responses (Set 1C). Staff's Data Request #137 pertaining to the Sandy Valley alternative site follows Table 1; text additions to the previously-issued Data Request #77 are shown in *italic type*.

Alternatives Table 1 Information from the Project Applicant on the Sandy Valley Alternative Site	
Criteria	Sandy Valley Alternative Site
Area and slope	Uncertain whether contiguous land of adequate size is available. No information on slope is provided.
Ability to obtain site control	Sufficient private land may be available, but many parcels are in agricultural use.
General plan and zoning	<i>Based on review of Inyo County's online information, the Sandy Valley lands appear to be in the Agriculture (A) land use designation. The Inyo County zoning primarily appears to be Open Space with a minimum 40-acre parcel size (OS-40).</i>
Transmission lines	Approximately 50 miles of new transmission line required.
Natural gas pipeline	The Kern River Gas Transmission pipeline is about 25 miles away.
Water supply	Individual wells supply water.
Desert tortoise	The site is among the alternatives with the highest ratings for tortoise habitat suitability; however, much of the land has already been disturbed by agricultural use. Staff notes that the USGS habitat rating is 0.6, and the site is adjacent to areas with ratings of 0.5 and 0.6.
Mohave ground squirrel	No information provided, but staff notes that the site is not within the range of Mohave ground squirrel.
Visual quality	No information provided.
Economic viability	"Medium" because the linears are long, but not as long as for other alternative sites. Staff notes that the linears for the Sandy Valley alternative are comparable to those proposed for the HHSEGS project. The proposed project would require either 39 miles or 67 miles of new transmission line, depending on the selected transmission option.
Site access	<i>There are public roads in the surrounding vicinity, as demonstrated on local mapping software.</i>

DATA REQUESTS

137. Sandy Valley Alternative Site – Please provide the following:

- a. Information on slope and potential available acreage in the area, including potentially available contiguous acreage in the northeast corner of San Bernardino County. Include a map showing a possible project site and footprint. *Provide the shapefile for the figure, including attribute information.* Describe the topography and elevations in the area.
- b. *Comprehensive* information on the number of landowners with property in the area. Discuss land ownership for the area and the acreage of land that is privately owned.
- c. Information on public lands in the area. Describe applicability of the U.S. Bureau of Land Management's plan for the Northern and Eastern Mojave Planning Area to land uses in the area.
- d. Information on Inyo County's general plan designation and zoning for private land in the area. *Please confirm the accuracy of the information provided in the data response on Inyo County's designated land use and zoning district for the area. Include information on San Bernardino County's general plan designation and zoning for private land in the area.*
- e. Description of existing land uses at the site and in the surrounding area. Include acreage figures *and crop types* for areas in agricultural uses.
- f. Information on site access from public roads in the area. *Add public roads and highways to the figure showing private land ownership for the area, or provide a separate figure that shows access routes.*
- g. Details and a map on a plan and route for a transmission line interconnection at the Eldorado Substation. Also address the feasibility of connecting to the Mt. Pass substation approximately 30 miles southeast. Estimate the cost for generation tie (gen-tie) lines to the Eldorado and Mt. Pass substations. Compare those costs to the known or estimated cost for the gen-tie line for the HHSEGS project.
- h. Information and a map showing a potential connection to the Kern River Gas Transmission pipeline.
- i. Discussion of the state of groundwater levels in the basin, including a discussion of whether the basin is in an overdraft or recovery state. Identify opportunities to mitigate potential impacts to groundwater.

- j. Details on the individual water supply wells in the area, including the number of wells and current uses. Discuss any water allocations for agricultural use, and identify the potential source(s) of water for this alternative.
- k. Information on the visual quality of the area. Include a discussion of how the project might impact views from the Pahrump Valley Wilderness. Compare the visual quality of this alternative location to the HHSEGS project area.
- l. Information on habitat types and protected plant and wildlife species that could be present in the area. Include data obtained from a California Natural Diversity Database record search for the area.
- m. Information on the sensitivity of the area for cultural resources and the potential for discovery of cultural artifacts.
- n. Description of how the economic viability of this alternative compares to the HHSEGS project.
- o. Information on any private lands available for sale in the Sandy Valley area.*

BACKGROUND

Subsection 6.7.1.1, in the AFC, "Central Tower with Integral Thermal Storage," briefly describes an alternative solar power tower project with integral thermal storage. The analysis summarizes problems for a project with integral thermal storage:

- Much higher costs than a project without integral thermal storage;
- Larger plant footprint to accommodate the thermal storage tanks;
- Increased risks related to the fluid becoming solid; and
- Hazards associated with the super-heated fluid, fires, or hazardous materials spills.

Staff notes that several articles published on Web sites since the AFC was filed in August 2011 indicate that BrightSource Energy is proposing the addition of thermal energy storage capability to its solar thermal power plants planned at two California sites in "Siberia and Sonoran West" (see the August and December 2011 EarthTechling articles referenced below). A recent press release from BrightSource Energy describes how adding storage to its power tower projects will provide utilities with "cost-competitive, reliable, and dispatchable clean power that meets peak demand" (see reference below).

According to statements by a representative from Southern California Edison (SCE) in an article recently published by Bloomberg's online business and financial information Web site, adding molten-salt storage at the BrightSource Energy facilities discussed above may improve energy production by 30 percent and allow the plants to have smaller footprints and use fewer materials (see reference below). Online sources, including the BrightSource Energy press release, indicate that adding molten-salt energy storage to these projects will require amending the power purchase agreements with SCE.

Applicable information recently published on Web sites and reviewed by staff includes these sources:

<http://www.earthtechling.com/2011/08/brightsource-adding-molten-salt-solar-storage/>
http://www.brightsourceenergy.com/images/uploads/press_releases/BSE_SCE_PPA_Storage_112811_FINAL.pdf
<http://www.forbes.com/sites/toddwoody/2011/11/28/brightsource-strikes-worlds-biggest-solar-energy-storage-deal/>
<http://www.bloomberg.com/news/2011-11-29/edison-brightsource-power-contracts-changed-to-use-storage.html>
<http://www.earthtechling.com/2011/12/molten-salt-storage-coming-to-california/>

DATA REQUEST

138. Please provide a revised discussion and updated analysis of the feasibility of adding energy storage capabilities to the proposed HHSEGS project. Please include the following:
- a. Information on new and modified equipment and processes to add molten-salt or other energy storage to the HHSEGS project. Discuss known or potential alterations to the project configuration and changes to the requisite number of heliostats.
 - b. Information on the expected benefits of adding storage capabilities to the project. Include potential benefits pertaining to improved efficiency and capacity, reduced energy costs, smaller site footprint, increased flexibility, and other potential benefits. Include information comparing the benefits of the proposed HHSEGS project to potential benefits of a project that is altered to include storage.
 - c. Information comparing the environmental effects of the proposed HHSEGS project to a project that includes storage capabilities. Discuss in detail how altering the project configuration, reducing the project footprint, or changing project operations could affect the level of impacts on environmental resources, including potential impacts relating to water use, air quality, sensitive plant and animal species and habitats, cultural resources, and visual resources.
 - d. Information on the extent to which a project with storage capabilities would satisfy the stated project objectives compared to the proposed HHSEGS project.

BACKGROUND

Subsection 6.7.1.2, "Parabolic Trough," briefly describes a parabolic trough system and concludes that the technology was not selected because of its lower efficiency, greater

impacts to vegetation, higher storm water impacts, and greater impacts to worker safety. Staff notes that slope conditions at the HHSEGS site may meet the minimum slope requirement for a parabolic trough project; the preliminary geotechnical evaluation for the project states that elevations at the project site are 2,675 to 2,585 feet above mean sea level, and the site slopes gently to the west. Subsection 6.7.1.2 of the AFC generally refers to impacts pertaining to “worker safety, fire protection, and environmental hazards associated with the thermal fluid.” No further details are provided. Staff requires additional information to compare the proposed HHSEGS project to an alternative using a parabolic trough technology.

DATA REQUEST

139. Please provide additional information on the technological feasibility of a parabolic trough alternative, including the following:
- a. Information and details documenting the conclusion that a parabolic trough system is less efficient than the proposed HHSEGS project. Please expand the discussion of efficiency to address energy conversion, land use, water use, and operating and maintenance costs. Compare the expected efficiencies of the proposed HHSEGS project to an alternative using a parabolic trough technology. Include specific data on the net generating capacity, in megawatts, for a parabolic trough alternative at the proposed HHSEGS project site (i.e., assuming the same project acreage).
 - b. Information on the feasibility of adding energy storage capabilities to an alternative using a parabolic trough technology.
 - c. Details on the potential impacts of a parabolic trough project relating to worker safety, fire protection, and environmental hazards.
 - d. In addition to the information requested under item “c,” provide information comparing the environmental effects of the proposed HHSEGS project to an alternative using a parabolic trough technology. Discuss in detail how operation of a parabolic trough project could change the level of impacts on environmental resources, including potential impacts on birds, bats, and eagles. Address the magnitude of impacts on visual resources, including a discussion of the difference between a project with and without a solar power tower. Compare impacts relating to glint and glare. Include discussions of how changing the project configuration and operations could affect the level of impacts on other environmental resources, including potential impacts on other sensitive biological species and habitats, water supply and use, air quality, cultural resources, and soils.

- e. Information on the extent to which a project using a parabolic trough technology, with and without storage, would satisfy the stated project objectives compared to the proposed HHSEGS project.

BACKGROUND

Subsection 6.7.1.3, "Solar Photovoltaic," briefly describes the solar photovoltaic (PV) power plant system and concludes that the technology was not selected because of its "inherent technical limitations, chiefly, intermittency, which at the desired scale poses significant challenges to grid system stability." Staff requires additional information to compare the proposed HHSEGS project to an alternative using PV technology.

DATA REQUEST

140. Please provide additional information on the technological feasibility of a PV alternative, including the following:
 - a. Information on how the location of a PV project relative to load centers alters the effect of intermittency on the system.
 - b. Data on the net generating capacity, in megawatts, for a PV alternative at the proposed HHSEGS project site (i.e., assuming the same project acreage).
 - c. Information on the costs and benefits of incorporating energy storage into a PV project, to improve the project's dispatchability and address intermittency.
 - d. Information comparing the environmental effects of the proposed HHSEGS project to a PV alternative. Provide details on differences in required water usage for the two technologies. Discuss in detail how operation of a PV project could change the level of impacts on other resources, including potential impacts on birds, bats, and eagles. Address the magnitude of impacts on visual resources for projects with and without a solar power tower. Compare impacts relating to glint and glare, including the impacts of heliostats compared to PV panels. Include discussions of how changing the project configuration and operations could affect the level of impacts on other environmental resources, including potential impacts on other sensitive biological species and habitats, air quality, cultural resources, and soils.
 - e. Information on the extent to which a PV project would satisfy the stated project objectives compared to the proposed HHSEGS project.

Technical Area: Soil and Water Resources

Authors: Mike Conway and Marylou Taylor

BACKGROUND –

As stated in the HHSEGS AFC, Appendix 5.15: Water Resources, Hidden Hills Interim Assessment Report, dated May 2011, “Limited aquifer hydraulic testing has been conducted in the vicinity of the project site” (Cardno Entrix, 2011). The report cites two aquifer tests that yield very little useful information.

The first test is from 1966, when water levels were likely about 45 feet higher than today (see USGS well USGS 360359115573201 162 S22 E53 01DA 1). The exact location of the well was not included in the report. The reported pump rate was 275 gallons per minute (gpm).

The second pump test was conducted at a well in the direct vicinity of the proposed project in 2003, but only lasted 22 hours because of declining water levels. The reported transmissivity was significantly lower than the 1966 test, 7,225 gallons per day per foot (gpd/ft) versus 4,675 gpd/ft. No pump rate was reported from the 2003 test.

The applicant also indicates another pump test should be conducted and states, “The proposed aquifer testing will aid in determining aquifer barrier boundaries such as faults within the aquifer that can limit the expansion of the cone of depression and correspondingly increase drawdown” (Cardno Entrix, 2011). Staff agrees with the applicant, an aquifer test should be performed to evaluate whether a reliable supply of water can be produced for project construction and operation and to better characterize aquifer parameters for local drawdown impact analysis.

DATA REQUEST

141. Please provide the results of a pump test of sufficient duration and flow to demonstrate that the aquifer can provide a reliable supply for project construction and operation. The pump test should also provide sufficient data to evaluate whether any barriers to flow exist.

BACKGROUND

The AFC states, “For existing domestic well pumpers in the vicinity of the project who agree to pre-operational groundwater monitoring, the Applicant will implement a retrofit program (e.g., lowering the pump intakes, deepening the wells, or building new wells) if the monitored well experiences lowered groundwater levels such that production rates decrease and pumping costs increase.” (HHSEGS, 2011).

Staff has no assurance that the proposed mitigation is viable. Staff has a record of local wells drilled beyond the typical 300 to 400 foot depth that yield no water. Staff also has records of local wells in the area about 300 feet deep that only yield 5 gpm. These data suggest the proposed mitigation of deepening and retrofitting wells may not be viable. If the proposed mitigation is not viable, the applicant must provide alternatives.

DATA REQUESTS

142. Please provide information sufficient to demonstrate the proposed well rehabilitation mitigation strategy is viable.
143. Please provide an alternative mitigation strategy for impacts to local wells, if no additional information can be provided to demonstrate the proposed well rehabilitation mitigation strategy is viable.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION
FOR THE *HIDDEN HILLS SOLAR ELECTRIC
GENERATING SYSTEM PROJECT*
HIDDEN HILLS SOLAR HOLDINGS, LLC**

DOCKET NO. 11-AFC-2

PROOF OF SERVICE
(Revised 12/22/2011)

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DECLARATION OF SERVICE

I, Elizabeth Stewart, declare that on, January 9, 2012, I served and filed copies of the attached Data Requests Set 2A, dated January 9, 2012. The original document, filed with the Docket Unit or the Chief Counsel, as required by the applicable regulation, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [www.energy.ca.gov/sitingcases/hiddenhills/index.html].

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(Check all that Apply)

For service to all other parties:

- X Served electronically to all e-mail addresses on the Proof of Service list;
- Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "e-mail preferred."

AND

For filing with the Docket Unit at the Energy Commission:

- X by sending an original paper copy and one electronic copy, mailed with the U.S. Postal Service with first class postage thereon fully prepaid and e-mailed respectively, to the address below (preferred method); **OR**
- by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 11-AFC-2
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

- Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
Michael J. Levy, Chief Counsel
1516 Ninth Street MS-14
Sacramento, CA 95814
mlevy@energy.state.ca.us

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Originally Signed by
Elizabeth Stewart