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

CH2MHILL

April 9, 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 2D
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 an electronic copy of Data Response Set 2D in response to Staff's Data Request Set 2D filed on February 3, 2012.

This data response set is being filed electronically and will be followed up with hard copies. Please call me if you have any questions.

Sincerely,

CH2M HILL

John L. Carrier, J.D.
Program Manager

Encl.

c: POS List
Project file

Data Response Set 2D

Hidden Hills
Solar Electric Generating System
(11-AFC-2)

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

April 2012

With Technical Assistance from

CH2MHILL®

IS061411043744SAC

Hidden Hills Solar Electric Generating System (HHSEGS)

(11-AFC-2)

Data Response, Set 2D (Response to Data Requests 156, 157, 166 and 173)

Submitted to the

California Energy Commission

Submitted by

Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC

April 9, 2012

With Assistance from

CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

Contents

Introduction

Attached are Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC (collectively, "Applicant") responses to the California Energy Commission (CEC) Staff's data request numbers 156, 157, 166 and 173 for the Hidden Hills Solar Electric Generating System (HHSEGS) Project (11-AFC-2). The CEC Staff served these data requests on March 9, 2012.

Applicant both objected and reserved the right to respond to Data Requests 167 through 171, and without waiving those objections Applicant will provide responses where the information requested was both relevant and reasonably available. Per the discussion at the last Status Conference, the responses to Data Requests 158 through 165 are being coordinated with responses to similar data requests posed by Staff in the Rio Mesa proceeding and will be filed on or before April 16th. Data Request 172, which required information on vegetation in ephemeral washes, will be provided on or before April 23rd. Data Requests 174, 175, and 176 are Staff's requests for information based on spring 2012 plant surveys. As agreed to with Staff, additional surveys conducted this spring will be completed and the results processed before filing with Staff.

The responses are presented in the same order as provided by CEC Staff and are keyed to the Data Request numbers. New tables are numbered in reference to the data request number. For example, the first table used in response to Data Request 166 is numbered Table DR166-1.

Biological Resources (156, 157, 166 and 173)

BACKGROUND: EFFECTS OF SOLAR POWER TOWER TECHNOLOGY ON AVIAN SPECIES

Various factors will affect solar flux across the project site, including the height of the heliostats. AFC Section 2.2 states that heliostats are approximately 12 feet high, and would be mounted on a pylon. No reference is made to the height of the pylon, the depth to which pylons will be buried, or the expected ground clearance of installed heliostats. The AFC further explains that certain areas of the solar fields would be more efficient than others due to incidence and reflection angles. Staff needs additional information to evaluate reflectance across the solar fields, and how this could potentially impact avian species as they fly across the project site.

DATA REQUEST

156. Please provide a description of the height and mounting techniques proposed to be used for installing heliostats.

Response: The heliostats are double-hung, meaning there will be two mirrors for each heliostat. The heliostat dimensions as shown in Figure DR152-1 (Data Response Set 2C), are 3394.8 millimeters (mm) by 5230 mm (134 inches by 206 inches). Overall height will be the sum of the mirror dimensions added to the necessary ground clearance. This figure assumes a 500-mm (19.7-inch) ground clearance.

One of the advantages of the HHSEGS's technology is that heliostats can be placed in uneven terrain, thus avoiding the need for extensive grading. Thus, the precise clearance from the bottom of the mirror to the ground will necessarily vary slightly depending on the terrain. If the terrain is uneven, the distance may be slightly higher; if it is flat and smooth, it could be reduced. Thus, clearance is expected to be in the range of between 12 to 18 inches.

As stated in the AFC, the support pylons will be installed using vibratory technology to insert the pylons into the ground (pre-augering prior to the installation of the pylon may be required). After pylon installation, the Heliostat Reflectors (i.e., the mirror assembly) will be hauled to the pylons using special platforms towed by tractors. The Heliostat Reflectors will be lifted by a special lifting device and lowered on top of the flanged pylon. Six screws are torqued, and the elevation drive (see Figure DR152-1, Data Response Set 2C) is affixed afterwards by two pins. The installation process is estimated to take 4 to 5 minutes per heliostat.

DATA REQUEST

157. Provide a description of the final "as-built" clearance of the heliostats to the ground. The discussion should include proposed measures for placement of heliostats in washes or other areas where soil characteristics would dictate special installation practices that might affect the final height of the installed heliostat.

Response: See Data Response 156. In addition, since the HHSEGS site has few deep washes or other extreme terrain, extensive earth work will not be required. Therefore, no special installation practices are planned. Heliostats will be installed in shallow washes. Moreover, the Staff and the Applicant have the benefit of the plenary information filed with the Commission during

the compliance phase related to installation experiences at the Ivanpah SEGS site, which has greater slope and deep washes.

BACKGROUND

Data Request Set 1B requested data on ambient temperatures at the solar tower, as projected by modeling. Applicant's response to Data Request #57 included Attachment DR57-4, "Expected Temperature Drop of the SRSG Panels After Shutdown (at 30°C ambient)". Staff requests clarification of Attachment DR57-4 as follows.

DATA REQUEST

166. Please provide a description of the projected percentage power output of the plant on a seasonal basis.

Response: The estimated percentage power output of the plant on a seasonal basis is presented below.

TABLE DR166-1
Estimated Percentage of Power Output by Season

Season	Percent Output
Winter	17.0%
Spring	27.3%
Summer	31.4%
Autumn	24.3%
Total Annual Output	**100.0%**

BACKGROUND – OFFSITE SPECIAL-STATUS PLANTS

The vegetation map of the one-mile buffer surrounding the proposed project site (tn 61756: AFC Volume 1, Section 5.2, Figure 5.2-3) indicates the presence of mesquite thickets associated with the springs east of the project boundary, as well as Mojave desert scrub, shadscale scrub, and a small area of disturbed (unvegetated) habitat. Area figures were provided for the vegetation and other cover types that occur within the project boundary, but not outside the project within the one-mile buffer. Staff needs this information to adequately assess the project's potential indirect impacts to adjacent habitat.

DATA REQUEST

173. Please provide acreages for the four cover types that occur within the one-mile buffer depicted in Figure 5.2-3 of the AFC, Section 5.2 (Biological Resources).

Response: The approximate acreages for the four cover types with the 1-mile buffer surrounding the project site are provided in Table DR173-1.

TABLE DR173-1
Vegetation Types in the 1-mile Buffer Surrounding the HHSEGS Site

Vegetation Type	Acres
Disturbed	4.9
Shadscale Scrub	2,761.4
Mesquite Thicket	619.4
Mojave Desert Scrub	5,106.5

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*

DOCKET NO. 11-AFC-2

PROOF OF SERVICE
(Revised 3/22/2012)

APPLICANT
BrightSource Energy
Stephen Wiley
1999 Harrison Street, Suite 2150
Oakland, CA 94612-3500
swiley@brightsourceenergy.com

BrightSource Energy
Andrew Miller
Michelle L. Farley
1999 Harrison Street, Suite 2150
Oakland, CA 94612-3500
amiller@brightsourceenergy.com
mfarley@brightsourceenergy.com

BrightSource Energy
Clay Jensen
Gary Kazio
410 South Rampart Blvd., Suite 390
Las Vegas, Nevada 89145
cjensen@brightsourceenergy.com
gkazio@brightsourceenergy.com

APPLICANTS' CONSULTANTS
Strachan Consulting, LLC
Susan Strachan
P.O. Box 1049
Davis, CA 95617
susan@strachanconsult.com

CH2MHill
John Carrier
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2987
jcarrier@ch2m.com

COUNSEL FOR APPLICANT
Ellison, Schneider and Harris, LLP
Chris Ellison
Jeff Harris
Samantha Pottenger
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816-5905
cte@eslawfirm.com
jdh@eslawfirm.com
sgp@eslawfirm.com

INTERVENORS
Jon William Zellhoefer
P.O. Box 34
Tecopa, CA 92389
jon@zellhoefer.info

Center for Biological Diversity
Lisa T. Belenky, Sr. Attorney
351 California Street, Ste. 600
San Francisco, CA 94104
e-mail service preferred
lbelenky@biologicaldiversity.org

Center for Biological Diversity
Ileene Anderson, Public Lands
Desert Director
PMB 447
8033 Sunset Boulevard
Los Angeles, CA 90046
e-mail service preferred
ianderson@biologicaldiversity.org

Old Spanish Trail Association
Jack Prichett
857 Nowita Place
Venice, CA 90291
jackprichett@ca.rr.com

INTERESTED AGENCIES
California ISO
e-recipient@caiso.com

Great Basin Unified APCD
Duane Ono
Deputy Air Pollution Control Officer
157 Short Street
Bishop, CA 93514
dono@gbuapcd.org

County of Inyo
Dana Crom, Deputy County Counsel
P.O. Box M
Independence, CA 93526
dcrom@inyocounty.us

Nye County
Lorinda A. Wichman, Chairman
Board of County Supervisors
P.O. Box 153
Tonopah, NV 89049
lawichman@gmail.com

*Nye County Water District
L. Darrel Lacy
Interim General Manager
2101 E. Calvada Boulevard,
Suite 100
Pahrump, NV 89048
llacy@co.nye.nv.us

*National Park Service
Michael L. Elliott
Cultural Resources Specialist
National Trails Intermountain Region
P.O. Box 728
Santa Fe, NM 87504-0728
Michael_Elliott@nps.gov

*indicates change

ENERGY COMMISSION – DECISIONMAKERS

KAREN DOUGLAS
Commissioner and Presiding Member
e-mail service preferred
kldougla@energy.ca.gov

CARLA PETERMAN
Commissioner and Associate Member
cpeterma@energy.ca.gov

Ken Celli
Hearing Adviser
kcelli@energy.ca.gov

Galen Lemei
e-mail service preferred
Advisor to Presiding Member
glemei@energy.ca.gov

Jim Bartridge
Advisor to Associate Member
jbartrid@energy.ca.gov

ENERGY COMMISSION - STAFF

Mike Monasmith
Senior Project Manager
mmonasmi@energy.ca.gov

Richard Ratliff
Staff Counsel IV
dratliff@energy.ca.gov

ENERGY COMMISSION – PUBLIC ADVISER

Jennifer Jennings
Public Adviser's Office
e-mail service preferred
publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, John L. Carrier, declare that on April 9, 2012, I served and filed copies of the attached Hidden Hills SEGS Data Response, Set 2D, dated April 9, 2012. This document is accompanied by 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 electronic copy to the e-mail 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.

John L. Carrier, J.D.
Program Manager
CH2M Hill