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Comments on the Preliminary Staff Assessment of the BrightSource Hidden Hills Solar Energy Generating System

JUL 16 2012

In Reference Reply to:
2801 (LLNV930)

Mr. Mike Monasmith
Project Manager
Siting, Transmission and Environmental Protection (STEP) Division
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, California 95814

Dear Mr. Monasmith:

This letter transmits the water-related concerns of the California and Nevada offices of the Bureau of Land Management (BLM) resulting from our review of the California Energy Commission's (CEC's) Preliminary Staff Assessment (PSA) of the Hidden Hills Solar Electric Generating System (HHSEGS). Our comments are part of our on-going effort to minimize or mitigate for impacts to BLM water-dependent public trust resources in Nevada and California.

The Nevada BLM is analyzing an associated right-of-way (ROW) application for a transmission line and a gas pipeline in Nevada, together called the Hidden Valley Electric Transmission Line (HVETL) Project, that will provide grid connection and natural gas for the HHSEGS located on private land just over the California state border.

The BLM understands that HHSEGSs would require up to 140 acre-feet per year (afy) of water, pumped from the Pahrump Valley groundwater basin. As stated in an earlier letter, the BLM is concerned that pumping from this water source, combined with cumulative impacts of other pumping, may cause impacts to the Amargosa Wild and Scenic River (W&SR) located in California, and to the Stump Spring Area of Critical Environmental Concern (ACEC) located in Pahrump Valley, Nevada.

The following items are concerns raised by BLM staff during review of the CEC's PSA and the public hearing that occurred on June 14, 2012 in Pahrump, Nevada.

Cumulative Effects:
The cumulative effects analysis should take into account all proposed development within the groundwater basin, including potential agricultural pumping as discussed at the June 14 meeting. Staff at the Pahrump and Barstow Field Offices can provide lists of all pending proposals on BLM land within their respective districts.

Biological Resources:
Condition of certification BIO-23 would require the applicant to conduct vegetation monitoring within groundwater-dependent vegetation communities located east of the project, including those within the BLM Stump Spring ACEC. The dual purpose of such monitoring would be to determine changes to biological resources and to distinguish project effects from background effects or a regional drought. A statistically significant change in biological resources is defined as a "decline in vegetation health of any groundwater-dependent species of 20 percent or more as compared to baseline values and values from offsite reference plots" (page 4.2-234). While the BLM supports this measure, additional clarification is needed to define what is meant by a 20 percent decline in vegetation health.

Soils and Surface Water:
An assumption is made in Table 6 (page 4.10-12) of the PSA that there will be negligible soil disturbance throughout the heliostat fields. Soil disturbance is a direct result of the installation of solar cells or mirrors and, to date, all technologies require some level of disturbance. Ground disturbance can occur even in relatively level areas. See attached Figure 1, where the ground surface in ISEGS disturbed heliostat fields differs markedly in appearance compared to adjacent undisturbed areas.

The applicant proposes to use the western perimeter roadway as a berm that would impound water into a retention basin, flooding a portion of the heliostat field during a 100-year storm event (PSA Figure 7). As the PSA points out, during such a storm event this berm would be insufficient to prevent flow across the roadway. Neither the applicant's plan of development nor the PSA's proposed SOILS-5 condition of certification address the possibility that flow across the roadway may cause this berm to fail, nor do they address any potential impacts of the resulting offsite flooding and scour. In particular, SOILS-5 does not require the berm to be stabilized with riprap, gunnite, or similar material that would prevent piping around the 18-inch culvert that would be the sole drainage point. Armoring of key points in this berm will be necessary to minimize risk to offsite soil resources. Alternatively, the applicant may choose not to install a berm along the western perimeter and simply allow floodwaters to pass through the heliostat field unimpaired, although this may result in heliostats being damaged or washed away.

Water Supply:
The applicant has performed an on-site well pump test, which lasted 4.5 days. We fully support the PSA's pump test review (Appendix A), which questions the assumptions, procedures, and conclusions of the applicant's pump test report. We recommend that another pump test be performed, lasting at least one week. This new pump test, combined with curve fitting for determination of the rate of drawdown stabilization at the monitoring wells, would better determine whether there is a direct link between the alluvial aquifer and the underlying carbonate aquifer. This information would help estimate the degree to which pumping may affect water resources to the east and west of the project, as well as the timing of such impacts. To get the best estimation of key subsurface parameters and impacts, it would be important for at least two of the monitoring wells to penetrate the carbonate aquifer. As shown in Figure 4 of Section 4.15 in the PSA, there are locations close to the project area where the carbonate aquifer is at or near ground surface.

The lack of any physical logs for any onsite or nearby wells impedes the ability to draw clear conclusions as to aquifer parameters and the impact of pumping on the aquifer. If well logs are available, the applicant should utilize them to validate its conclusions regarding the impact of pumping on groundwater. At least some of the monitoring wells should be screened in the same stratigraphic interval as the pumping well. Actual physical data from well logs rather than assumed values for aquifer parameters is critical for analyzing pump test results, and for using these results to construct a conceptual model of local and regional groundwater flow and the impacts of the HHSEGS project on this flow. If any of the above data reveal that the initial pump test conclusions were incorrect, the water supply and mitigation plans may need to be revised.

The BLM supports implementation of condition of certification WATER SUPPLY-1, which would require the applicant to replace all extracted groundwater. This is similar to a mitigation measure being developed by California BLM in discussion with the developer of the Desert Harvest solar project in the Chuckwalla Valley, as well as future developers in that basin. Unlike the Desert Harvest mitigation, however, the PSA recommendation is to require BrightSource to simply replace the extracted water at some point during the 30-year life of the project. At least some of this replacement should be required to occur early in the life of the project. Reinforcing this need is the existence of large ground cracks approximately 4 miles north of the HHSEGS site, which appear to be subsidence cracks caused by groundwater extraction in the area (see attached Figure 2); these features suggest that the basin is already experiencing an irreparable loss of storativity by diminishing local groundwater aquifers.

The groundwater monitoring network suggested by the CEC will be more robust if the number of monitoring wells is increased. The hydrologists for the BLM's Southern Nevada District and California Desert District recommend a groundwater monitoring system that would differentiate project impacts from other impacts such as climate change and other groundwater pumping within the basin. Item A1 of condition of certification WATER-SUPPLY-8 would require a monitoring network of ten wells, but only three of these would be outside the project boundary. We recommend that additional wells be included in the monitoring network. East of the project site on Nevada BLM land, we suggest five additional monitoring wells to supplement the CEC-proposed wells. Specifically, the BLM suggests two additional wells directly up-gradient from Power Block 1 and two additional wells directly up-gradient from Power Block 2 to supplement CEC-identified BLM Mesquite Bosque Wells 1 and 2, respectively. These wells should be placed at regular intervals 0.5 to 1.5 miles from the project boundary. One additional well should be installed east of the Stump Spring ACEC so as to help differentiate any drawdown east of the ACEC, for example drawdown extending from the proposed BrightSource Sandy Valley SEGS project, from drawdown emanating from the HHSEGS site. If any drawdown is measured over time at the Mesquite Bosque Wells, monitoring wells placed in the configuration described above should provide adequate information to determine whether this drawdown is originating from the project site or is due to other factors identified above.

Condition of certification WATER-SUPPLY-8 recommends only one well to the west of the project, between 2 and 3 miles from the project boundary; this well would be on the far side of an inferred fault (Figure 13 of the PSA), which may delay drawdown at that well. The BLM recommends four additional wells; like the wells recommended above, these would be placed at

regular intervals up to two miles west of the project boundary. As stated above, it is imperative that the best estimates of the degree and timing of any potential impacts of the project on the Amargosa River be determined and mitigated for prior to approval of the project.

The BLM supports items C3 and C4 of WATER-SUPPLY-8, which would require the project owner to "substantially reduce, modify, or stop project pumping" if impacts are seen either at the eastern project boundary or at either of the BLM Mesquite Bosque Wells. However, these two items require pumping to cease only if the water table at the BLM Mesquite Bosque Wells drops 0.5 feet (that is, 0.5 feet below the level predicted by current trends) ***and*** plant vigor drops below the threshold set in BIO-23. We recommend a more rigorous and protective set of trigger requirements. First, we recommend that drawdown triggers also be determined for other wells closer to the project, the locations of which are discussed above. These trigger depths would be graduated based on the expected drawdown at these wells that would correlate to an 0.5-foot drawdown at the Mesquite Bosque Wells, based on results of the additional pump test and curve-fitting procedure discussed above. Second, we recommend that pumping be immediately curtailed or ceased if any of these drawdown triggers are crossed, regardless of whether impacts appear in the vegetation. By the time vegetation is noticeably affected, it may be too late for pumping curtailment to save these bosques.

The BLM appreciates having the opportunity to provide comments on the HHSEGS project. If you have any questions please contact Sarah Peterson, Nevada State Lead for Soil, Water, Air & Riparian programs at 775-861-6516; Dr. Boris Poff, District Hydrologist for the Southern Nevada District office at 702-515-5154; Peter Godfrey, Hydrologist, California Desert District, at 951-697-5385; or Dr. Noel Ludwig, Hydrologist, California Desert District, at 951-697-5368.

Sincerely,

James G. Kenna
California State Director

Amy Lueders
Nevada State Director

cc:
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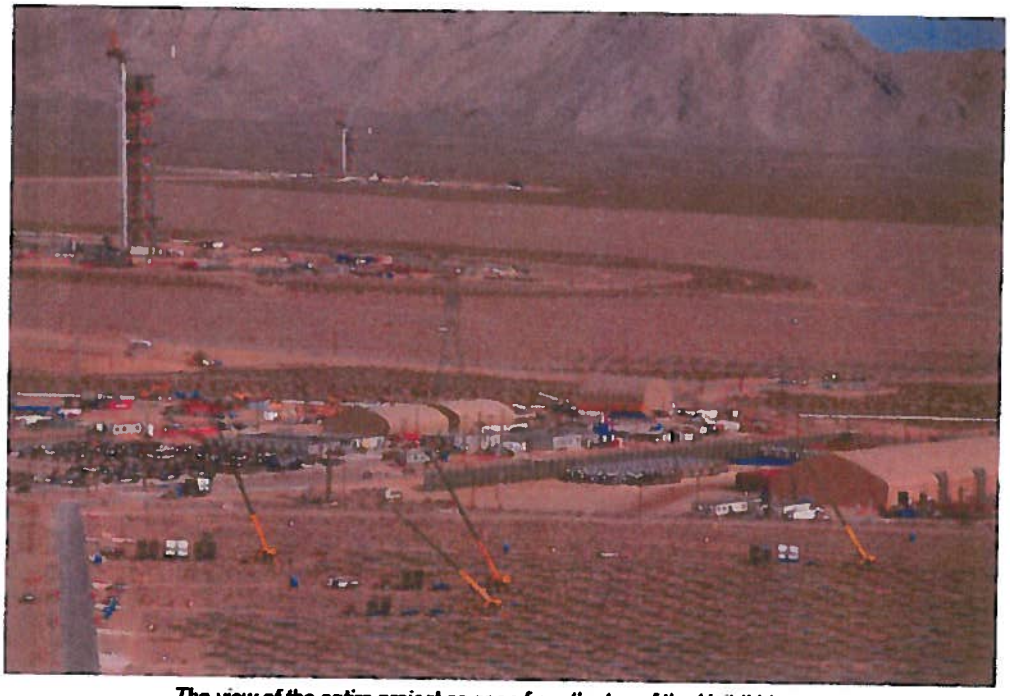

The view of the entire project as seen from the top of the Unit #1 tower, with Unit #2 (left) and Unit #3 (center) in the distance.

Figure 1. Oblique view of Ivanpah Solar Energy Generating System construction, showing disturbance within heliostat fields.

Figure 2. Large ground cracks located approximately 4 miles north of the HHSEGS site.