

Submitted To
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, CA 95814-5112

DOCKET

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March 9, 2012

**RE: HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM
APPLICATION FOR CERTIFICATION**

Dear Commissioners:

Please accept the following submission, "Preliminary Public Comments, Technical Analysis & Recommendations" regarding the Application for Certification of the Hidden Hills Solar Electric Generating System.

Due to the fact that I grew up less than a half mile from the proposed project site, still have family living in Charleston View as well as being a property owner with plans to eventually retire there, I have a significant interest and stake in the outcome of these proceedings. Therefore, I have spent the last several months extensively analyzing the proposed project because of its potential impacts to both the community as a whole as well as myself personally.

The HHSEGS will be sited in a very harsh and consequently, delicately balanced environment. Here, each species is dependent on each other and even minimal disturbances take a long time to recover from, if recovery is possible at all.

For over forty years, the public has been calling for changes to energy production methods in efforts to reduce environmental degradation, to better protect and conserve natural resources, to better protect public health, to reduce our dependency on fossil fuels and to explore alternatives in efforts to detour our current culture from what amounts to a predatory and cannibalistic system that is consuming itself.

When Ronald Regan took office, he eliminated most of the funding for alternative energy and its R&D while simultaneously pulling off the solar panels from the White House. Today, climate change and global warming are now being used by industry leaders and decision makers to "sell" renewable, sustainable and alternative energy by citing the urgent need to reduce our own impacts to ourselves. The "business as usual" model has made us - and everything around us - sick, diseased, and toxic as well as institutionalizing "war" to supply our now desperate needs.

It is with great sadness that I have reviewed Bright Sources proposal for the Hidden Hills SEGS. Not only because it will produce irreparable harm on what is now a relatively pristine area that has so far managed to generally avoid much of the impacts from industrialization, but also because the applicant has consistently demonstrated the “business as usual” mindset that brought us to this crisis in the first place.

I know I am not the only one who has been struck by the irony of industrial scale solar plants being sold as “renewable and sustainable”, despite the fact that they going to be responsible for unprecedented environmental destruction *that is the antithesis of renewable or sustainable*.

So again, I urge the Commission to consider the fact that there is an alternative, we can have the same amount of energy production without destroying the very environment we are purporting to conserve. Please recognize that the Bloom Energy Servers can address both our energy needs and our desire to protect the environment from further degradation, desertification, and accelerating climate change, which is a direct result of our past failings.

However, in the event this alternative is not pursued, it is very important to insure the construction and operations of the HHSEGS is as well done as possible. Therefore, the enclosed document is a mix of personal comments, observations, research, technical analysis of components specific to the project, questions and data requests seeking to clarify, resolve discrepancies, and/or address omissions, as well as recommendations so that in the event the project is approved, it will be done so in a well informed, objective and rigorous manner.

As this analysis has grown, much of it is directed towards CEC Staff and/or the applicant in efforts to resolve many identified issues that have so far “fallen through the cracks”. It is my sincere hope that this submission will be taken seriously, as the footprint of this industrial scale commercial project is massive and if approved, will result in permanent and irrevocable changes to both the environment and the surrounding community.

With respect to the applicants’ continual demands of expediency due to their commercial and/or financial interests, they should be given little sympathy as, unlike Ivanpah, the applicant is now more experienced. Yet instead of building on that experience and submitting an even better proposal, it is less comprehensive, often vague and filled with “to be announced” plans whose direct, indirect and cumulative impacts will go undisclosed and without adequate review.

While it is recognized that the certification process is yet to be completed, it is my firm belief that the available documents and data request/ response system has so far been inadequate. As such, I would strongly recommend an Environmental Impact Statement be prepared prior to even considering issuing a decision on the proposed Hidden Hills Solar Generating System.

Sincerely,
Cindy MacDonald

PRELIMINARY COMMENTS TECHNICAL ANALYSIS & RECOMMENDATIONS

SUBMITTED BY C.R. MACDONALD

HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM



TO CALIFORNIA ENERGY COMISSION

MARCH 9, 2012

PRELIMINARY COMMENTS, TECHNICAL ANALYSIS & RECOMMENDATIONS
HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM
SUBMITTED BY C.R. MACDONALD
TO CALIFORNIA ENERGY COMMISSION

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AIR QUALITY

"Air pollutants adversely affect the health of 4 to 5 billion people worldwide....Over 2.7 million annual global deaths can be attributed to air pollution"

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002

AIR QUALITY

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. AIR EMISSIONS LIMITATIONS

Background

In Section 6.0, Alternatives, pp. 22, the applicant states:

“These boilers will be used primarily during the summer in the late afternoon and early evening when electrical energy usage peaks. However, their use will be restricted by the solar plant’s renewable energy source designation and air emissions limitations discussed in Section 5.1, Air Quality.” (Emphasis added).

Comments

I could not find any air emission restrictions on the boilers use throughout the entire document.

Questions

1. Where are the discussions specific to limitations and restrictions regarding the use of the boilers via air emissions?
2. Who is responsible for monitoring and enforcing these limitations and restrictions and how will this be accomplished in this remote area?

Recommendations

N/A

2. SF₆ MODELING PARAMETERS

Background

In Appendix 5.1B, Emissions and Ops Parameters, Table 5.1B-13, Greenhouse Gas Emissions Calculations, pp. 18, the operating hours of the circuit breakers requiring SF₆ is estimated at 8,760 hours annually. Under “footnotes”, it also states:

- *Estimates of the SF₆ contained in a 230 kV breaker range from 161 to 208 lbs, depending on the manufacturer.* (Emphasis added.)
- *IEC standard for SF₆ leakage is less than 0.5%”*
- *The NEMA leakage standard for new circuit breakers is 0.1%*
- *A maximum leakage rate of 0.5% per year is assumed.*

In Section 5.5 Hazardous Materials Handling, Table 5.5-3, Chemical Inventory, pp. 11, the applicant states there will be:

"A maximum of 200 lbs of Sulfur hexafluoride" (a.k.a, SF₆)

In the 2011-11-17, Data Response Set 1A, pp. 13, the applicant states:

"SF₆ requirements for the project are estimated to yield 48 metric tons of CO₂ p/year."

Comments

The applicant provides a range of lbs. of SF₆ in various circuit breakers depending on the manufacture, but fails to specify the exact lbs. used to complete the SF₆ emissions modeling that is used to derive their annual emissions estimates.

According to the EPA on [SF₆ emissions](#):

"The electric power industry uses roughly 80% of all SF₆ produced worldwide. Ideally, none of this gas would be emitted into the atmosphere. In reality significant leaks occur from aging equipment, and gas losses occur during equipment maintenance and servicing. With a global warming potential 23,900 times greater than CO₂ and an atmospheric life of 3,200, one pound of SF₆ has the same global warming impact of 11 tons of CO₂." (Emphasis added.)

Also, as part of the conditions of the [EPA final permit](#) for the Palmdale Hybrid Power Plant approved October 18, 2011, pp. 15(b), the circuit breakers are required to be equipped with a 10% by weight leak detection system. However, it is currently unclear if the 10% weight leak detection system is a standard way to authorize up to 10% leakage or if this system is referring to another kind of leakage that shall not exceed 10%.

Questions

1. What were the lbs. of SF₆ per circuit breaker used to create the emissions model analysis?
2. Since the lbs. of SF₆ vary depending on the manufacture, what is the range of SF₆ emissions the HHSEGS can potentially emit, depending on the specifications of the manufactures cited?
3. If each lb. of SF₆ is the equivalent of 11 tons of CO₂ as described by the EPA and the applicant estimates SF₆ requirements for the HHSEGS project are estimated to yield 48 metric tons of CO₂ p/year, does this indicate that only a little over 4 lbs. of SF₆ were modeled to derive the annual CO₂ yield? If not, why not? Please explain.

4. According to the EPA's conversion factor for each lb. of SF₆, the site will store the equivalent of 2,200 tons of potential CO₂ emissions. What is the applicants CO₂ equivalent of 200 lbs. of the SF₆ that will be stored onsite? Please explain.

5. Does any of the SF₆ stored onsite have the potential to create emissions? If so, by what percent?

6. While the NEMA leakage standard for new circuit breakers is 0.1%, will this percentage degrade over the life of the project? If so, by how much and what are the cumulative impacts of the projected degradation?

7. While the applicant assumes an annual SF₆ leakage rate of 0.5%, based on the EPA approved permit for the Palmdale Hybrid Power plant, is it more realistic to assume an annual leakage rate of 10%? If not, why not?

Recommendations

- Provide the number of lbs. of SF₆ per circuit breaker that were used in the emissions modeling analysis.
- Provide a range of potential SF₆ emissions per circuit breaker depending on the manufactures cited.
- As a condition of the permit, require the specific circuit breaker models that will be installed at the HHSEGS be committed to and disclosed so exact SF₆ emissions can be calculated for emissions impacts.
- Explain the leakage standard for new circuit breakers of 0.1%; specifically, describe if this standard of 0.1% will be maintained over the life of the project, any projected annual degradation and if so, define the direct, indirect and cumulative impacts over the life of the project.
- Since the EPA defined requirements for the Palmdale Hybrid Plant as equipping the circuit breakers with a 10% weight leakage detection system, please clarify what this means and explain how this would or would not apply to the HHSEGS operations and emissions parameters.

3. CONDENSATE/FLASH TANKS

Background

In Section 2.0 Project Description, pp. 13, the applicant describes part of the HHSEGS operations as, *“Condensate from the flash tanks will be further flashed to atmosphere”*.

In Appendix 5.1D, Air Modeling Analysis, Figure 5.1D-2, Structures and Emission Sources, pp. 4, provides a diagram of the structures and emission sources for each solar plant.

Comments

I could not find any specific discussions regarding emissions from condensate or the flash tanks nor their location at the project site.

Questions

1. Are air emissions specific to condensate and flash tanks included in the emissions evaluations for the HHSEGS? If so, where are they located?
2. Prior to condensate being “flashed into the atmosphere”, will the flash tanks vent any emissions? If so, what kind, how much and for how long?
3. What are the projected atmosphere emissions from the flashing process including kind of chemical, amount and duration?
4. Where are the flash tanks located at the project site?

Recommendation

- Provide a description and discussion of emissions analysis specific to the condensate and flash tanks, which include both type of chemicals and projected emissions release in terms of lbs p/h and lbs p/yr.

4. THERMAL EVAPORATOR

Background

In Section 5.14 Waste Management, pp. 11, is the following description of plant operations.

“Plant Drains-Oil/Water Separator. General facility drainage will consist of plant raw water use such as equipment washwater, equipment leakage, and drainage from facility equipment areas. If cleaning chemicals are not used, water from these areas will be collected in a system of drains, hub drains, sumps, and piping and routed to the oil/water separator, and then to the waste collection tank. From there, the water will flow through a filter system to thermal evaporators. Remaining wastewater (approximately 1,358 gallons per day) will be disposed of offsite at an approved facility”. (Emphasis added).

In Appendix 5.1D, Air Modeling Analysis, Figure 5.1D-2, Structures and Emission Sources, pp. 4, provides a diagram of the structures and emission sources for each solar plant.

Comments

It is unclear what the impacts of the thermal evaporators will be or where they will be located on the project site.

Questions

1. Does the use of thermal evaporators result in additional emissions/pollutants dispensed into the air? If so, how much and what kinds of emissions?
2. Are air emissions specific to the thermal evaporators included in the emissions evaluations for the HHSEGS? If so, where are they located?

Recommendations

- Provide a detailed description and discussion regarding thermal evaporator functions, heat levels, location at the project site and emissions analysis specific to the thermal evaporators, which include both type of chemicals and projected emissions release in terms of lbs p/h and lbs p/yr.

5. PIGGING FACILITIES

Background

In Section 2.0, Project Description, pp. 10, the applicant states:

“Construction activities related to the onsite metering station and metering sets will include grading a pad and installing above- and belowground gas piping, metering equipment, gas conditioning and pressure regulation equipment, and possibly pigging facilities.” (Emphasis added).

Comments

It is unclear if the HHSEGS will have pigging facilities or not.

Questions

1. Why are pigging facilities merely described as “possibly”?
2. What are the impacts of including pigging facilities at the HHSEGS site, i.e., construction, emissions, hazardous wastes, etc.?

Recommendations

- Elaborate on the impacts of incorporating pigging facilities and operations, details, requirements, necessity, likelihood of installation, emissions, location, etc.
- Provide an analysis that compares the incorporation of pigging facilities at the HHSEGS site versus not.

6. EPA TOOLS: NATURAL GAS EMISSIONS

Background

The EPA has a page of “Recommended Tools” for reducing natural gas related emissions.

<http://www.epa.gov/gasstar/tools/recommended.html>

Comments

A discussion and analysis of these tools would help increase understanding of conformance to Best Management Practices at the HHSEGS site.

Questions

1. How many of the EPA Recommended Tools will the HHSEGS incorporate?
2. Are there places within the current design system that do not incorporate these tools that can be redesigned to incorporate them?
3. How will each portion of the HHSEGS system comply and/or compare to all applicable recommendations on this page?

Recommendations

- The maximum incorporation of these tools will result in higher environmental quality and help support renewables intent of decreasing environmental footprints.

7. DIESEL EXHAUST

Background

In Appendix 5.1F, Table 5.1F-2, Peak Annual Emissions During Project Construction (Inyo Co, CA), Tons Per year, pp. 5, results of modeling for concentrated pollutants are presented. Worker Travel and Truck Deliveries were included in the emissions estimates but were noted as “Offsite emissions”.

However, emissions from diesel exhaust PM₁₀ concentrations were excluded from this cumulative analysis and modeled separately (Health Risk of Diesel Exhaust, pp. 9). No footnotes, explanations, project assumptions or input parameters were provided regarding this separate analysis of diesel exhaust PM₁₀ concentrations.

Comments

In Appendix 5.1F, Table 5.1F-2, Peak Annual Emissions During Project Construction (Inyo Co, CA), Tons Per year, there is no description of what parameters “Offsite emissions” encompasses.

Questions

1. Since Table 5.1F-2 specifically cites “Inyo County, CA” Tons Per Year, were the “offsite emissions” calculations site-specific to the Inyo County portion of the project or did they include emissions produced from the Nevada side as well?

2. What are the diesel exhaust PM₁₀ concentrations in terms of daily and annual emissions?
3. If diesel exhaust PM₁₀ concentrations were included in the cumulative totals presented in Table 5.1F-2, what would the daily and annual cumulative emissions results be?
4. What were the parameters and inputs used to model the Health Risk of Diesel Exhaust to determine the applicants' conclusions, i.e., areas of concentration, operations emissions, vehicular travel, mirror washing activities, etc.?

Recommendations

- Provide a document detailing specific and cumulative emissions resulting from Diesel Exhaust with respect to both the construction portion of the project, concentration locations and regular operating emissions over the life of the project in order to determine accurate public health risks.

8. WORKER TRAVEL/TRUCK DELIVERIES: MAXIMUM DAILY EMISSIONS

Background

In Appendix 5.1F, Construction Emissions and Impact Analysis, Table 5.1F-1, Maximum Daily Emissions During Project Construction (Inyo County), Pounds Per Day, Month 8 (Combustion), Months 8 and 9 (Fugitive Dust), the applicant cites the maximum daily emissions for Worker Travel/Truck Deliveries to equal 55.4 lbs. p/day as derived from Attachment 5.1F-1 (Detailed Construction Emissions Calculations, Daily and Annual Construction Emissions, pp. 11).

The Daily and Annual Construction Emissions referenced above states daily construction emissions during the peak month for PM₁₀ emissions is 8.15 lbs p/day for Worker Travel and 47.25 lbs p/day for Truck Deliveries (pp. 11)

The applicant also provides a monthly breakdown of daily projected construction workers and truck deliveries under the Hidden Hills Construction Worker and Deliveries Schedule (pp. 14).

Finally, the applicant provides two charts that provide a detailed breakdown of peak Truck Deliveries (pp. 18) and maximum Worker Travel (pp. 19).

Under the maximum Worker Travel calculations, the applicant applies 288 days to determine yearly emissions impacts. This equates to 24 days per month.

Comments

To determine Worker Travel emissions, the applicant used the best-case scenario by applying 24 days per month to calculate emissions impacts. With the exception of February, 2-3 days of every month failed to be included in the emissions calculations. The applicant also used rounded averages that resulted in lowered maximum number of workers per day, daily round trip miles calculations and annual emissions rates.

With respect to Truck Deliveries, the applicant applied a “rolling average” to calculate the maximum Truck Deliveries emissions and though presented by the applicant as “peak” daily emissions, they are not.

While I agree finding averages to determine cumulative impacts are necessary, especially with a project as large as this, I disagree that “averages” should be used to present “peak” impacts.

Because of my continuing concerns regarding PM₁₀ emissions in the Pahrump Valley not being sufficiently addressed or accounted for in the applicants documents, I decided to see if there were any differences between what the applicant presented as “peak” PM₁₀ emissions for Worker Travel/Truck Deliveries by their use of averages and what actual peak PM₁₀ emissions might really be.

It turns out, there were actually two “peak” months; one for Truck Deliveries and one for Worker Travel.

Because numbers of Worker Travel and Truck Deliveries varied by month, I did an analysis specific to each month. I did not round off worker travel miles to averages but did use the applicants’ assumption that the rate of 100 round trip miles would be applied to each worker projected to travel per day for the month analyzed.

I multiplied the number of workers per day times 100 round trip miles to determine the daily vehicle miles traveled, then multiplied that number times 24 days in the month being analyzed. The total vehicle miles traveled for that month was multiplied by the applicants PM₁₀ emissions value of .0001 p/miles traveled to determine the monthly PM₁₀ emissions pounds. This total was then divided by 24 days to determine the actual daily PM₁₀ emissions rate for the month analyzed (combustion only).

With Truck Deliveries, I followed the same formula and analyzed each month specific to the deliveries projected to occur each day of that month and used the Truck Delivery PM₁₀ emissions (.0012) for Vehicle Miles Traveled instead (combustion only).

As a result, the two highest months of PM₁₀ combustion emissions impacts occur in August, 2013 for highest number of Truck Deliveries and May 2014, for highest number of Worker Travel.

Combining Worker Travel/Truck Delivery PM₁₀ emissions for August 2013 resulted in 93.94 lbs of emissions p/day and May 2014 totaled 60.34 lbs of emissions p/day.

The daily average of PM₁₀ emissions for Truck Deliveries, beginning in May 2013 through April 2014 (the first year truck deliveries begin) resulted in 61.54 lbs p/day.

The daily average of PM₁₀ emissions for Worker Travel, beginning in November 2013 through October 2014 (the number workers on either side of the “peak” month of May) resulted in 9.61 lbs. p/day.

If daily average PM₁₀ emissions for Worker Travel/Truck Deliveries are calculated from the actual “maximums” and “peaks” presented by the applicant in their construction schedule, the average would be at least 71 lbs of PM₁₀ combustion emissions p/day.

These calculations did not take into account the 2-3 days p/month that combustion emissions are not calculated or any fugitive dust emissions either. Finally, they also don’t account for the applicants’ statement in Section 2.0 Project Description that *“During some construction periods and during the startup phase of the project, some activities will continue 24 hours per day, 7 days per week.”* (pp. 18), as this is still an unknown variable.

In the instance of Worker Schedule/Truck Deliveries, the applicant should provide true “maximum” and “peak” data if they are going to title that data as such. While it’s certainly acceptable to calculate and define averages over the construction phase of the project in order to analyze cumulative impacts, it is also necessary to distinguish average impacts from maximum impacts.

Questions

1. How does the applicants’ use of averages accurately represent “maximum” and “peak” emissions impacts during the construction phase of the HHSEGS?
2. Why is the applicant allowed to omit 2-3 days per month of emissions calculations for Worker Travel/Truck Deliveries?
3. Were other emission calculations performed using 288 days in the year? If so, which ones?
4. Has the use of “rolling averages” and other averages allowed the applicant to reduce maximum projected emissions in other calculations concerning actual impacts of the HHSEGS?

Recommendations

- The applicant should present data pertaining to the HHSEGS project as accurately as possible. In addition to averages, the Worker Travel and Truck Delivery emissions projections should also be calculated on a daily and monthly basis of the actual month being analyzed to determine actual impacts. These calculations should include actual days of the month being analyzed versus applying an average of 24 days per month.
- If the applicant has used “rolling averages” and other averages to determine “maximum” impacts of the construction and operational phase of the HHSEGS project, they should be redone to distinguish between average and maximum impacts.

- A cumulative analysis that combines all projected direct and indirect impacts of particulate matter and emissions resulting from the HHSEGS site to air quality site-specific to the Pahrump Valley should be made available in reasonably plain language for review by decision makers and the public regarding the project site and surrounding areas.

9. PRODUCE EXPOSURE PATHWAYS

Background

In Section 5.9, Public Health, pp. 2/3, the applicant states:

“Air will be the dominant pathway for potential public exposure to non-criteria pollutants released by the project. Emissions to the air will consist primarily of combustion by-products produced by the boilers and emergency engines. Potential health risks from combustion emissions will occur almost entirely by direct inhalation. To be conservative, additional pathways for dermal absorption, soil ingestion, and mother’s milk ingestion were included in the health risk modeling; however, direct inhalation is the dominant exposure pathway. Consistent with OEHHA guidance, because of the remote desert location of the proposed project, the produce and fish pathways were not evaluated.”²
(Emphasis added.)

“Footnote 2 “The other exposure pathways (e.g., the ingestion of homegrown produce or fish) are evaluated on a site-by-site basis. If the resident can be exposed through an impacted exposure pathway, then it must be included in the HRA. However, if there were no vegetable gardens or fruit trees within the zone of impact for a facility, for example, then the produce pathways would not be evaluated. Source: OEHHA, 2003.” (Emphasis added)

In Appendix 5.1H, Modeling Protocol and Related Correspondence, pp. 16, the applicant reaffirms exclusion of modeling and health risks screenings relative to the impacts of the HHSEGS facility to local food production by stating;

“The other exposure pathways (e.g., the ingestion of homegrown produce or fish) are evaluated on a site-by-site basis. If the resident can be exposed through an impacted exposure pathway, then it must be included in the HRA. However, if there were no vegetable gardens or fruit trees within the zone of impact for a facility, for example, then the produce pathways would not be evaluated. [emphasis added]

In Section 5.6, Land Use, pp. 8/9, the applicant describes “gardens” within the framework of the St. Theresa Mission located 0.5 miles away from the HHSEGS project boundary.

“There are no schools, daycare facilities, convalescent centers, or hospitals within, or in the immediate vicinity of, the project study area. The St. Therese Mission, a commercial facility, has broken ground on 17.5 acres approximately 0.5 mile from the HHSEGS boundary. It will consist of a chapel, columbarium, garden, restaurant, visitor’s center, playground, restrooms, and an onsite caretaker home.”

Comments

The applicant has inappropriately excluded health-screening risks of the HHSEGS facility to local food production, which includes vegetable gardens and fruit trees.

With respect to the St. Theresa Mission, a more detailed description of the Mission was recently obtained from the Inyo County Planning Department under Staff Report, dated June 23, 2010.

Under Executive Summary, the St. Theresa Mission was described as:

“A proposal to construct an environmental park development on 17.5 acres at 881 E. Old Spanish Trail in the far southeastern portion of Inyo County, in the community of Charleston View, approximately 20 minutes from the Pahrump, Nevada area. The project will consist of a chapel, a meditation garden (to include Stations of the Cross), a restaurant facility with banquet/event capabilities, a visitor’s center (to include area tourist information, “green technology” information), greenhouse-organic garden/nursery area and tree farm, a playground, a dog park, and restrooms, enclosed/indoor columbarium buildings for the storage of cinerary (i.e., cremation) remains in above-ground vaults, an outdoor garden area for cinerary remains in above-ground vaults, and an on-site caretaker home (two-family unit).”

On the St. Theresa Mission’s website, the project planners further refine plans, which include; “...tree farm, organic gardens [and] a green house where fresh produce will be grown and cultivated” (Going Green, <http://sttheresemission.com/wp/going-green>)

As for local residents in Charleston View, my parents have been cultivating fruits and vegetables and maintained orchards for decades, as had many residents in the past.

Though their garden has varied over the years, they have grown and will continue to grow a myriad of fruits and vegetables, which include; tomatoes, carrots, cucumbers, bell peppers, hot peppers, corn, peas, garlic, onion, pumpkin, winter and summer squash, zucchini, lettuce, swiss chard, mustard greens, spinach, cabbage, turnips, Jerusalem artichokes, cauliflower, broccoli, beets, red potatoes, lima beans, green beans, peanuts, watermelon, cantaloupe, honeydew, Crenshaw melon, strawberries, sunflowers, a wide variety of grapes, blackberries, mulberries as well as herbs including basil, rosemary, dill, horseradish and thyme.

The fruit and nut orchards include apples, apricots, peaches, plums, nectarines, pears, persimmons, pomegranates, figs, lemons, grapefruits, oranges, walnuts and almonds. Most of the fruit and nut trees had produced for so long, they lived through their life cycles. Over the last few years, the orchards have been replanted and now total over 40 trees.



Fruit trees in spring.



Grape arbors and fruit trees in winter.



Apricot tree in summer.



Sorghum and grape arbors.

Questions

1. Gardens were included in the applicant's own descriptions of the goals of the St. Theresa Mission, yet a health screening risk to local food production from the HHSEGS was not evaluated. Why not?
2. What are going to be the impacts to local food production for residents in Charleston View?

Recommendations

- Provide an evaluation of the HHSEGS to food production in the area.

10. PUBLIC NOTICE: AQIA TRIGGER LEVELS

Background

In 5.1 Air Quality pp. 14, the applicant states:

"If project emissions exceed the air quality impact assessment (AQIA) trigger levels, public notice under Rule 209-A is required. The Applicant expects that the GBUAPCD Air Pollution Control Officer will provide this notice in a timely manner. The AQIA trigger levels for new sources are 15 pounds per hour or 150 pounds per day of NOx, VOC, SOx, PM10 or PM2.5, and 150 pounds per hour or 1,500 pounds per day of CO."

Comments

Residents of Charleston View have a single billboard used for public information services located at the Tecopa highway next to the dumpsters. With respect to phones, resident's only option is cell phones, which may or may not be available to each resident in the area.

Questions

1. How will project emissions and trigger levels be monitored to provide public notice as there is no air quality monitoring station within the area?
2. Will residents be dependent on the owners of the plant as the sole source of monitoring air quality?
3. What method(s) will the GBUAPCD Air Pollution Control Officer use to notify the residents of Charleston View in the event the project exceeds air quality standards?
4. Will the GBUAPCD Air Pollution Control Officer also be required to notify residents of Pahrump?
5. What is the definition and specific parameters of "timely manner"?

Recommendations

- Due to the remoteness of the area, explore and disclose realistic timely notification procedures to Charleston View and/or Pahrump residents in the event the HHSEGS project exceeds air quality standards.
- Provide independent monitoring of air quality data in relation to the HHSEGS site that can be quickly communicated to appropriate officials for timely notification to affected residents.

11. PSD CLASS I WILDERNESS AREAS

Background

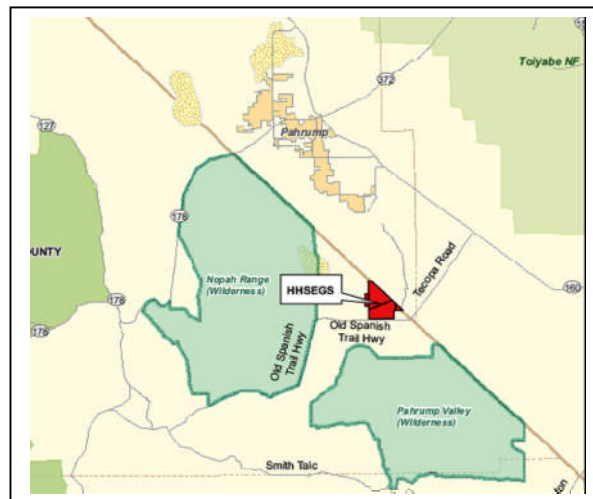
In 5.1, Air Quality, pp. 4, the applicant cites 5.1.2.1.1, Prevent of Significant Deterioration Program: Requirements that includes; *“The PSD program allows new sources of air pollution to be constructed, or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., national parks and wilderness areas).”*

It goes on to add, *“The principal requirements for the PSD program include those outlined below”,* which include, *“The air quality impacts nearby PSD Class I areas (specific national parks and wilderness areas) must be evaluated.”*(pp. 5)

In the Air Quality Impact Analysis, Table 5.1-2, pp.6, PSD Increments and Significant Impact Levels are shown. However, the Maximum Allowable Class II Increments are provided but no reference could be found to Maximum Allowable Class I significant impact levels.

Comments

The HHSEGS project site is nearby the Pahrump Valley Wilderness, which should qualify as a Class I designation.



Source: 2011-12-30 Data Response Set: 1B-2 TN-63262, Appendix A, Figures, pp. 47.

Questions

1. Why is the Maximum Allowable Class II significant impact levels provided but not Class I?

Recommendations

- Provide a Table that addresses PSD Maximum Allowable Class I significant impact levels.

12. PSD SIGNIFICANT THRESHOLD TRIGGERS

Background

Appendix 5.1, Air Quality, pp. 5, Table 5.1-1, PSD Significant Emissions Thresholds, in the column for PSD Significant Emissions Threshold (tpy), the threshold is listed for GHG (Green House Gases) as 75,000 tpy. This column also has a footnote (b) *“PSD/Title V GHG Tailoring Rule, June 3, 2010.”* The text surrounding this table states, in part, *“Effective July 1, 2011, a stationary source that emits both more than 100,000 tpy of GHGs and more than 100 tpy of any individual GHG, is also considered to be a major stationary source.”*

Table 5.1-28, pp. 45, lists the HHSEGS projects GHG’s emissions at 99,700 tpy. Table 5.1-28 also provides emissions rated at metric ton/year for Nitrous Oxide and Methane as well as their CO₂ equivalents. However, emissions for SF₆ fail to list metric tons p/y and only provides a formula instead of tons.

Table 5.1-29, pp. 45, provides a comparison value of HHSEGS emissions to PSD Significant Threshold triggers.

Comments

Some of the information and explanations presented between these two emissions tables are unclear. The quote regarding PSD Significant Thresholds effective July 1, 2011 provides no authoritative source for these threshold requirements.

Questions

1. Why aren’t CO₂ emissions included in the PSD Significant Thresholds in Table 5.1-1?
2. Are the PSD Significant Emissions Threshold tpy in Table 5.1-1 listed as metric tpy, a “short” ton p/y, or are they CO₂ equivalents?
3. Why are the PSD Significant Emissions Threshold trigger levels different in Table 5.1-1 versus Table 5.1-29?
4. Under what authority did changes to PSD Significant Emissions Threshold levels become effective as of July 1, 2011; federal, state, regional?
5. Why did Table 5.1-28 provide metric tons p/y for Nitrous Oxide and Methane but only provided a formula for the SF₆ emissions?

Recommendations

N/A

13. INSUFFICIENT DATA: MODELING PARAMETERS

Background

In Appendix 5.1H, Modeling Protocol and Related Correspondence, pp. 25, Table 4, the pollutant values for Trona, CA, for 2010 annual NO₂ emissions are classified as “Insufficient data”. With no further explanation, the applicant also fails to provide the SO₂ pollutant rating for this same year as well as omitting data for the CO level in Barstow, CA.

Comments

Due to missing values in Table 4, it is unclear how the applicant has satisfied the three-year data completeness threshold requirement.

Questions

1. Why is annual SO₂ and CO data missing from 2010?
2. With 2010 annual NO₂ data classified as “insufficient”, was this where the applicant filled in “missing data” during the modeling analysis? If so, why are the 2010 NO₂ values still missing?

Recommendations

- Clarify why values are missing for 2010 and how the use of years with insufficient data complied with EPA requirements of using three years of data to determine ambient air quality.

14. UPPER AIR DATA: REPRESENTATIVE MODELING

Background

The applicant uses upper air meteorological data from Elko, Nevada to complete their emissions modeling. Reasons cited for using data 335 miles away is the closer Desert Rock, Nevada station is missing 15% of its data between 2006 and 2010, which fails the EPA regulatory threshold for data completeness.

In Appendix 5.1H, Modeling Protocol and Related Correspondence, pp. 16, the applicant cited;

“EPA defines the term “on-site data” to mean data that would be representative of atmospheric dispersion conditions at the source and at locations where the source may have a significant impact on air quality. The meteorological data requirement originates in the Clean Air Act at Section 165(e)(1), which requires an analysis “of the ambient air quality at the proposed site and in areas which may be affected by emissions from such facility for each pollutant subject to regulation under [the Act] which will be emitted from such facility.”

It also went on to state,

“This requirement and EPA’s guidance on the use of on-site monitoring data are also outlined in the On-Site Meteorological Program Guidance for Regulatory Modeling Applications.¹⁶ The representativeness of the data depends on (a) the proximity of the meteorological monitoring site to the area under consideration, (b) the complexity of the topography of the area, (c) the exposure of the meteorological sensors, and (d) the period of time during which the data are collected. The Pahrump, NV, monitoring station is 18 miles (28 km) from the project site, and is located in the same valley and at a similar elevation on the same high desert plateau. Therefore, the met data station meets criteria (a), (b) and (c) above. In addition, we proposed to use five years of meteorological data to ensure adequate representation of temporal variation. Based on these considerations, the applicant believes that the proposed meteorological data are representative of conditions at the project site.”

Comments

Summary

I have significant concerns regarding the HHSEGS’s impacts to air quality in the Pahrump Valley. These concerns are compounded by two areas in the air quality modeling analysis that fail to best represent site-specific conditions in the valley relative to the HHSEGS’s impacts.

The first area of concerns is the applicants’ insistence that upper air data from Elko located 335 miles away is both adequate and the equivalent to air dispersion patterns in the Pahrump Valley itself.

After researching this issue, I could find no viable reason to support the applicants omission of upper air data from the Desert Rock, NV meteorological monitoring station in their modeling application of the HHSEGS impacts to air quality in the Pahrump Valley. Due to the fact that the Desert Rock, NV meteorological data would best represent site specific conditions to the project and the surrounding area, decision makers and the public should be allowed to review an air quality model that best represents the area affected by the proposed project.

Supporting Arguments

The Desert Rock, Nevada monitoring station is located on the Nevada Test Site, 65 miles northwest of Las Vegas and approximately 18 miles northwest of the project site. The applicant concedes that the data from the Pahrump monitoring station is valid for modeling applications in three of the four categories cited above by the EPA.

Based on conformance requirements cited by the applicant to the above standards, I interpret both the intent and plain language of Clean Air Act requires on-site analysis and in the surrounding areas that may be specifically affected by the proposed project.

As for the EPA guidance, it clearly states that representativeness depends on a four pronged evaluation; three of which the applicant states the Pahrump data has admittedly fulfilled.

However, I do not see any reference in either the Clean Air Act or the EPA guidance cited here that allows the omission of the Desert Rock monitoring data located merely 18 miles away from the project site to be excluded from best representing emissions impacts and ambient air quality.

I also could not find any official reference as to how the applicant assumed they have complied with representativeness requirements based solely on one prong of the total evaluation process. According to the applicant, merely 5% less of the upper air data from the Desert Rock Station is missing, disqualifying the data for regulatory purposes but not for requirements in the Clean Air Act.

As a result of not having any official source cited by the applicant for the EPA standard of requiring a 90% data completion threshold for upper air data, an extensive online search was conducted - but found no results for a 90% data threshold standard specifically for upper air data completeness.

Only two references were found regarding a 90% data threshold standard. The first was in the EPA publication, "[Guideline On Data Handling Conventions For The 8-Hour Ozone NAAQS](#)". Here, the EPA listed its recommendations as guidance, not law or regulation, and responded to the question, "What is a complete data year?" by stating:

"For the purpose of judging compliance with the standard, a valid year must have valid 8-hour daily maximum ozone concentrations for at least 75 percent (74.5% rounds up) of the required monitoring days in the ozone season designated for NAMS or SLAMS monitoring sites. All three years must average at least 90 percent data completeness (89.5% rounds up) to demonstrate attainment."

(Note: While I understand and agree the most current data would be the most desirable and best represent actual current conditions at the project site as proposed by the applicant, I could find no reference in EPAs guidance requiring the three-year average and data completeness threshold must be determined from the years most current to the proposed project.)

In answers to subsequent questions in the above referenced document, the EPA also discusses the use and parameters of using a minimum of 75 percent data completeness, which may be counted in evaluations and modeling and includes parameters for handling missing data on a case-by-case basis through regional coordinators. It also states, "*Incomplete data may not be used to excuse a clear nonattainment situation.*"

The second most relevant source searched for 90% threshold completeness for upper air data was the EPA's [National Air Quality Standards](#) webpage, which provided no upper air data standards or guidance in any percentile.

The third most relevant source searched for upper air data standards was the Electronic Code of Federal Regulations website, [Title 40: Protection of the Environment](#), Chapter 1, Subchapter C-Air Programs, Part 50, National Primary and Secondary Ambient Air Quality Standards. No reference to upper air data threshold standards were found here either.

The other source that expressed a 90% data threshold standard was found in the EPA publication, "[Meteorological Monitoring Guidance for Regulatory Modeling Applications](#)". This publication also outlined parameters and necessities for applying meteorological data that most represented the proximity to a project site in order to obtain the most accurate air quality modeling results.

Specific to this necessity included:

"Upper-air wind data are needed to accurately characterize upper-air transport", [and] "Wind shear conditions can have important implications with respect to air quality, because of the different transport and turbulence conditions that can exist at different altitudes where air pollutants may be present." (pp. 111)

"Factors that influence the vertical distribution of winds include....complex terrain environments (mountain-valley airflows)." (pp.112) (Note: Pahrump Valley is a valley and as such, by this definition would be categorized as a complex terrain environment.)

In Section 6.8, Treatment of Missing Data, the EPA provided a whole section of alternatives and procedures that provide a range of options to model air quality, including for agency review. It was here that the other reference to a 90% data completeness threshold was found – but not in relation to upper air data – and it did clearly state modeling was not required to use a 90% completeness threshold and substitutions are allowed.

"Substitutions for missing data should only be made to complete the data set for modeling applications; substitutions should not be used to attain the 90% completeness requirement for regulatory modeling applications (Section 5.3.2)" (pp. 78)

I interpret the above reference to include a distinction; the first referring to modeling applications in general and the second referring to regulatory modeling for application purposes.

An additional relevant point regarding the necessity to review data closest to the HHSEGS project site is adequate data is available between the years of 2003-2007 as is showcased in [Appendix D, Air Quality and Climate](#), Table D-1, Summary of Meteorological Data Used in the Nevada National Security Site Air Quality Analysis, pp. 3. Here the Desert Rock Upper Air and Surface data was used for dispersion modeling to determine air quality.

Given the relatively short length of time between the proposed HHSEGS site and the meteorological data available at the Desert Rock, NV monitoring station between 2003-2007, changes through the present time to wind speeds, air pressure, etc. should not be significant.

Therefore, the most accurate representation of air pollutants dispersion site-specific to the Pahrump Valley would be obtained through modeling of pollutant impacts in the actual area the pollutants are being emitted via upper air data dispersion patterns.

Due to the large volume of air quality regulations and standards set forth by the EPA, I recognize the possibility that I have missed regulations specific to upper air data that mandate a 90% completeness threshold.

However, in the event that a specific regulation does mandate upper air data to meet a 90% data completeness threshold for exclusively regulatory application purposes that must represent the three years closest to the proposed project, this should not be used as an excuse to prevent decision makers and the public from reviewing a more site-specific analysis relative to the conditions of the Pahrump Valley as a whole when complete data for subsequent years is reasonably available.

Additionally, the EPA provides ranges of alternatives and options for dealing with missing data, provides modeling protocol that does not require a 90% data completeness threshold to help determine a projects impacts as well as allowing case-by-case reviews through the authority of regional directors.

This is a case where prior data is sufficient to be used for modeling purposes and/or missing data protocol can be used to best determine representativeness in the area of the project site. Decision makers and the public should be able to review air quality impacts from the HHSEGS site to the Pahrump Valley specifically, not “regionally” in an area estimated to occur 335 miles away.

Questions

1. What section of the Clean Air Act and/or Code of Federal Regulations requires upper air data to meet a 90% completeness data threshold?
2. What section of the Clean Air Act and/or Code of Federal Regulations requires upper data used for site-specific modeling purposes to be exclusively taken from the three years closest to the proposed project?

Recommendations

- Provide a site-specific modeling analysis that incorporates upper air data from the Desert Rock, NV, monitoring station for the years 2003-2007 to help decision makers and the public review site-specific impacts to air quality relative to the Pahrump Valley – even if this modeling fails to meet a 90% data completion threshold.

15. PM₁₀/PM_{2.5} SUBSTITUTIONS

Background

(A) The applicant chose Jean, NV, versus Pahrump to better represent air quality at the project site for PM₁₀ and PM_{2.5} values. The reason cited by the applicant for using air quality data from Jean versus Pahrump is:

“Although the PM₁₀ monitoring site at Pahrump, Nevada, is closer to the project site than the Jean station, the Pahrump data are strongly affected by local windblown dust, and therefore are not representative of regional background concentrations. As noted by the Nevada Bureau of Air Quality Planning (NVBAQP, 2010):” (Emphasis added).

“Fast population growth in the ‘90s through mid-2006 created intensive development. Large parcels of land were cleared of vegetation, subdivided and prepared for housing construction. Dirt and gravel roads were constructed. Many of the planned housing developments never materialized and the lots are now disturbed, vacant areas.”

“As a result of the disturbed, vacant land and the number of dirt and gravel roads, fugitive dust (particulate matter less than 10 microns, or PM) became a problem. The Pahrump valley is subject to high winds and these winds often create dust storms.”

“However, the project site is not downwind of the Pahrump area under most meteorological conditions² and therefore would not be expected to be affected by the dust storms that create high localized PM₁₀ concentrations in Pahrump. Consequently, PM₁₀ concentrations monitored at Jean better represent conditions in the project area.” (5.1 Air Quality, pp. 28) (Emphasis added)

(B) In response to questions regarding fugitive dust modeling parameters, the applicant stated; *“Even at the locations of maximum impacts, at the project fenceline, construction impacts for the HHSEGS project are not expected to cause any ambient air quality standards to be exceeded with the exception of PM₁₀ for which standards are already exceeded.” (emphasis added) (2011-12-30 Supplemental Data Response 1A TN-63258, pp. 10, (AQ-5)*

(C) In Appendix 5.4A, Preliminary Geotechnical Report, pp. 6, the location of Pahrump is defined as, *“The nearest community to the site is the township of Pahrump, Nevada, which is located approximately 4 miles to the northwest.”*

(D) In the 2011-12-30 Supplemental Data Response 1A TN-63258, pp. 10, (AQ-5), the applicant provides a photo of the south end of Pahrump captioned with: *“View looking north from a location north of the Project site. View is across the closest location for a BLM translocation site in California showing saltbush vegetation. Fine soils in low-quality habitat for desert tortoise and the proximity of development in south Pahrump. Town of Pahrump is shown in the distance (zoomed photo).”*



Source: 2011-12-30 Supplemental Data Response 1A TN-63259, pp. 27, Photo 2a.

(E) Additionally, while the Air Quality section discusses PM₁₀ levels at dry lakes several hundred miles away resulting in non-attainment status for PM₁₀ levels in the area, there is a dry lake located merely a mile away from the perimeter of the project site.



View looking west from Pahrump Dry Lake across Pahrump Dry Lake.

Source: 2011-12-30 Supplemental Data Response 1A TN-63259, pp. 26, Photo 1d.

Comments

While I agree with the applicants use of monitoring data from sources with potentially higher level pollutants present in the ambient air quality backgrounds, I disagree with the applicant's assertion that substituting the Jean, NV, data to best represent the project site area is also the best representative of analyzing the Pahrump Valley in relation to fugitive dust (PM₁₀ and PM_{2.5} particles).

The applicant seeks to confine analysis of fugitive dust to within the boundaries of the HHSEGS to determine its direct, indirect and cumulative impacts; but the HHSEGS site is not an isolated island within the valley itself.

As the applicant noted, *"The Pahrump valley is subject to high winds and these winds often create dust storms."*(Emphasis added).

The presence of fugitive dust in Pahrump has been admitted to being "a problem". It is also acknowledged that PM₁₀ level standards in the valley have already been exceeded. The affects of the dry lake adjacent to the HHSEGS project site are not even acknowledged, much less discussed by the applicant during air quality analysis.

In discussions regarding PM₁₀ levels, the applicant treats the fact that the already exceeded PM₁₀ levels in the valley are reason to dismiss additional impacts made from the construction and operations of the HHSEGS. It shows a similar mindset of someone who justifies compounding an illegal trash dump by dumping trash on top of it because "a little more won't hurt".

As a result of all these factors, I have significant concerns the applicant may be discriminately choosing data to reflect best-case scenarios by substituting PM₁₀ and PM_{2.5} levels in the Pahrump Valley with those at Jean to avoid realistic modeling and cumulative impacts. This is then compounded by substituting upper air data from Elko, which may fail to reflect complex terrain wind conditions and pollutant levels in the valley in efforts to ease or prevent disclosure of actual direct, indirect and cumulative impacts of the HHSEGS project site to the area.

Pahrump, the HHSEGS project site and Charleston View are all located in the same valley. As noted in the Las Vegas area, valleys can tend to "trap" air until wind speeds become sufficient to move the air out of the valley; this is one of the reasons the air quality in Las Vegas (merely 45 miles away) is listed by the EPA as "Serious" and classified under a "Non-attainment" status. In my experience, this has applied equally to the Pahrump Valley as sometimes air has been trapped for several days before winds move it.

With respect to the project site not being downwind of Pahrump, this only applies to a portion of the year as cool air comes in from the north, a.k.a. winter. Pahrump is north of the project site and is capable of impacting the HHSEGS site with fugitive dust emissions during northern wind events and winter months.

However, I find the omission of analysis from the HHSEGS's air quality impacts to Pahrump due to the predominate south/southwesterly winds disturbing. Fugitive dust emissions are already cited as a significant issue for Pahrump and wind directions are projected to predominately blow from the project site into Pahrump.

The applicant only projects impacts from fugitive dust emissions from Pahrump to the project site while failing to fully analyze fugitive dust emissions from the project site to Pahrump; despite the southern end of Pahrump being classified as merely 4 miles away from the project boundaries.

By comparison, the Toquop Energy Project set the model radius for 80 km, approximately 50 miles. ([Appendix 12, Air Pollution Modeling, Air Quality Dispersion Modeling Protocol \(Revised\) – Class I and Sensitive Class II Area Impacts](#), pp. 70).

While the current status of Pahrump's growth has slowed due to downturns in the economy, it has in the past and most likely will continue to grow due to its proximity to Las Vegas. With merely 4 miles separating the HHSEGS project boundaries with the boundaries of Pahrump, it is reasonable to assume Pahrump's fugitive dust and those of the HHSEGS project site will have cumulative impacts to air quality across the valley; during construction, during normal operations such as mirror washing activities (including seasonal changes) and over the life of the project.

Finally, the applicant also fails to analyze potential impacts to Frontsite gun range, which is sited along its borders.

Questions

1. Is PM₁₀ and PM_{2.5} data available from the Pahrump monitoring station that would satisfy a 90% data completeness threshold for EPA regulatory air quality monitoring standards for the years 2003-2010?
2. Even though the southern end of Pahrump is cited as 4 miles away, no analysis, discussion or cumulative analysis was applied to HHSEGS impacts to Pahrump's air quality. Why?

Recommendations

- Provide an air quality modeling analysis that incorporates Pahrump PM₁₀ and PM_{2.5} data for the years between 2003-2007 and incorporate this data with upper air data taken from Desert Rock, NV, for these same years. This would allow decision makers and the public to review a more realistic localized assessment of site specific impacts to air quality in the Pahrump Valley, as this is the best available data to assess representativeness to the area in relation to the direct, indirect and cumulative impacts of the HHSEGS project.

- Provide an analysis of the Pahrump Valley's dry lake contribution to air quality in the valley and in relation its cumulative impacts to the HHSEGS project site.

16. FINAL GEOTECHNICAL ANALYSIS: ADDITIONAL AIR QUALITY MODELING

Background

Currently, only a Preliminary Geotechnical Report has been submitted by the applicant. In it, recommendations were made by the preparers regarding the need to stabilize some of the native soils, either through importing outside soils or mixing soils with stabilizers.

Due to the fact that a full Geotechnical Report is still unavailable, the scope and extent of how much soil will need to be removed, moved or stabilized is still unknown.

Comments

The applicant has yet to include PM₁₀ and PM_{2.5} dust emissions in their emissions and air quality analysis due to the lack of available information regarding soil stabilization needs.

However, it is reasonable to assume the addition of hauling native soils out, moving native soils to other areas of the project site and hauling outside soils into the site will result in a significant increase in PM₁₀ and PM_{2.5} emissions in comparison to the current projections.

Questions

1. Will the applicant remodel all PM₁₀ and PM_{2.5} air quality and fugitive dust emission calculations after reviewing the final Geotechnical Report?

Recommendations

- Require a detailed air modeling analysis based on the results of the Final Geotechnical Report and estimated required soil disturbances to stabilize the project site.

17. SOIL LOSS, WIND EROSION: AFFECTED ACREAGE

Background

In Appendix 5.11A, Soil Loss Calculations, the applicant provides two charts to estimate soil loss as a result of project construction. The first is an estimate of soil loss via water erosion, Table 5.11-3, and provides several notes and project assumptions as references regarding input parameters for determining estimates.

However, currently it can only be assumed that the second table provided at the back of Appendix 5.11A is a projection of soil loss via wind erosion since this table fails to be referenced by number, has no heading as to what it pertains to and provides significantly less information regarding input parameters for soil loss calculations.

Soil Type	Acreage	Soil Loss Estimates Using RUSLE2 software (tons/ac/year)				
Site		Slope	Grading	Construction w/o BMPs	Construction with BMPs	No Project
(s5740)	3097	1.0	1.0	0.4	0.012	0.0011
subtotal	389	Subtotal	389	171.2	4.7	0.43
Temporary Construction Area						
(s5740)	180	1	1.0	0.4	0.012	0.0011
subtotal	29	Subtotal	29	12.8	0.35	0.03

Assumptions:

The No Project soil loss assumes a 'dense grass, not harvested' management scenario in RUSLE2.

This scenario is very conservative for sparse native desert scrub condition.

Assumes project site and temporary construction area would have 10% bare soil during construction.

In Appendix 5.15A, Construction Drainage, Erosion and Sedimentation Control Plan/Stormwater Pollution Prevention Plan, the identical table published in Appendix 5.11A for estimated soil loss via water erosion was found on page 32. A similar table was presented underneath it, Table 6, Estimate of Total Suspended Particulates Emitted from Grading and Wind Erosion at Project Site.

In efforts to determine if Table 6 in Appendix 5.15A represented the unnumbered table in Appendix 5.11A, the two tables were cross-referenced. However, this turned out to be an impossible task as the numbers between the two tables failed to match at all (including affected acreage).

Also, in the unnumbered table in the Soil Loss Calculation Appendix, measurements were given as tons/ac/year. In Table 6, soil loss calculations were provided as total suspended particles in tons p/year.

TABLE 6

Estimate of Total Suspended Particulates Emitted from Grading and Wind Erosion at Project Site

Emission Source	Affected Acreage	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading and Construction Vehicle Dust			
Project Site	412	125.6	18.7
Temporary Construction Area	180	69.1	10.3
Estimated Total		194.7	29.0

Project Assumptions: Grading for the project site is estimated to involve 2,528 acre-months of disturbance.

Sources: PM10 Emission Factor Source: Midwest Research Institute, South Coast AQMD Project No. 95040, Level 2 Analysis Procedure, March 1996; EPA, AP-42 Sections 11.9 and 13.2.2 and EPA, "Control of Open Fugitive Dust Sources", September 1988.

Comments

As described in the background above, this data requires clarification. Throughout all of the applicants' documents, I was unable to locate a breakdown of affected acreage regarding how the applicant derived their acreage assumptions for grading and construction activities to determine soil loss or windblown dust calculations.

Questions

1. What is the unnumbered/unnamed table in Appendix 5.11A soil loss calculations in reference too?
2. Why does this unnumbered/unnamed table have significantly less notes, project assumptions and description of input parameters than Table 5.11-3 for Water Erosion?
3. Why, in all modeling for soil loss calculations in Appendix 5.11A, did the applicant use the input of “dense grass, not harvested” as representing the No Project parameters when this fails to represent site-specific arid environmental conditions?
4. Why does the affected acreage total in Table 6 (412 acres) differ from the individual acreage breakdown in Table 5.11-3 and the unnumbered/unnamed table in the Soil Loss Calculation Appendix (418 acres)?
5. In what section of the applicants documents is the total suspended particles (TPS) modeled and what methods/input was used to determine Table 6’s conclusions?
6. How does the total suspended particles calculated at tons p/year differ from soil loss estimates calculated as tons p/year?

Recommendations

- The applicant should provide a specific breakdown of affected acreage from grading and construction activities. This should include specific individual acreage estimates for perimeter grading at the fenceline, the total number of 20-ft drive zones surrounding the heliostat sections within the project site and acreage, roadways to the facilities and facility parking, estimated native soil removal from the project site due to corrosive soil types, estimated backfill required to stabilize soils, estimated grading and/or filling of ephemeral washes, etc.
- A cumulative analysis that combines all projected direct and indirect impacts of particulate matter and emissions resulting from the HHSEGS site to air quality site-specific to the Pahrump Valley should be made available in reasonably plain language for review by decision makers and the public regarding the project site and surrounding areas.

18. LEVEL 2 EMISSION FACTOR

Background

In Appendix 5.1F, Hidden Hills Construction Equipment Schedule, pg. 32, the applicant provides a list of equivalents and factors used to determine emissions calculations. Under the section titled Wind Erosion of Active Construction Area, the applicant sites a Level 2 Emission Factor = 0.011 ton/acre-month. The source of this factor is cited as, “Improvement of Specific Emission Factors (BACM Project No. 1), Final Report”, prepared for South Coast AQMD by Midwest Research Institute, March 1996.

Comments

In an online search regarding the emission factor cited above, in a software program guide for air quality modeling, URBEMIS2007 for Windows Users' Guide, Version 9.2, Appendix A – Construction Emissions, Page A-6, Footnote 1, stated the Midwest Research Institute has derived a value of 0.11 tons/acre/month, not 0.011 tons/acre/month as cited by the applicant.

<http://www.urbemis.com/software/URBEMIS9%20Users%20Manual%20Appendices.pdf>

Questions

1. What is the correct value assigned by the Midwest Research Institute, 0.11 tons/acre/month as stated in the URBEMIS software or 0.011 tons/acre/month as used by the applicant?

Recommendations

- If applicant has made an error, corrections are required.

19. ACRES: WINDBLOWN DUST EMISSIONS MODELING

Background

In Appendix 5.1F, Hidden Hills Dust Emission Factors, the applicant presents a variety of analysis for construction equipment emissions, including windblown dust emissions for active construction.

Between pages 28-30, the applicant fails to list dust emissions for windblown dust and substitutes 276,744 square foot in each column instead.

On pp. 35, the applicant provides windblown dust emission factors per sq-ft as follows:

“Uncontrolled PM₁₀ dust emissions p/sq. ft = 1.68E-05 (Converts to .0000168)”

“Controlled PM₁₀ dust emissions p/sq-ft = 2.51E-06 (Converts to .00000251)”

On pp. 36, cites daily windblown dust emissions from active construction at 0.7 lbs p/day beginning in April 2013 through December 2014.

Comments

The use of 276,744 square feet as an active construction area equals 6.35 acres. Yet the applicant cites in other areas that disturbed construction acres are estimated to be at least 592 acres (5.11 Soils, Table 5.11-5, Estimate of Total Suspended Particulates Emitted from Grading and Wind Erosion at Project Site, pp. 10)

When multiplying 276,744 sq-ft. used by the applicant to determine PM₁₀ windblown dust emission with the values assigned to controlled PM₁₀ particulates (.00000251), it equates to .109393231 lbs of wind blown dust p/acre. This multiplied by 6.35 acres equals the .7 lbs p/day the applicant cites on pp. 36.

However, approximately 585 additional acres fail to be included in calculations for windblown dust due to active construction. If the entire construction area was included, it would equal 65 lbs of windblown dust a day; and this includes the use of control measures.

Furthermore, the .109393231 lbs of wind blown dust p/acre appears to be the “accurate” dust emissions factor but “rounded up” with respect to the Midwest Research Institute value of 0.11 tons/acre/month.

A relevant footnote in the Urbemis 2007 Windows Users’ Guide, Appendix A – Construction Emissions, pp. A-6, stated:

“The Midwest Research Institute has derived a value of 0.11 tons/acre/month, which converts to 10 pounds per day, assuming 22 workdays per month. The California Air Resource Board review has reviewed this factor and concluded that it represents PM₁₀ emissions with watering. Consequently, ARB concludes that 20 pounds per acre day is more appropriate for unmitigated fugitive dust conditions.”

If this information is relevant to the applicants’ use of the 0.11 tons/acre/month in their PM₁₀ windblown dust calculations, the actual conversion rate per acre is at least 10 lbs. p/day.

Perhaps another relevant quote from the Urbemis users guide regarding emissions calculations includes:

“For commercial uses, URBEMIS2007 assumes that the total project acreage equals twice the size of each building’s square footage. For example, URBEMIS2007 assumes that a 100,000 square-foot industrial park would require 200,000 square feet (4.6 acres) of land disturbance. As a default estimate, URBEMIS2007 assumes that 25% of total land acreage slated for disturbance will actually be disturbed on the worst-case day”. (Emphasis added)

Questions

1. Why is only 276,744 sq-ft or 6.35 acres used to calculate windblown PM₁₀ dust emissions from active construction sites?
2. Why do the windblown dust values never change in the PM₁₀ analysis, despite increases in construction activities over the course of the construction phase of the project?
3. Is the value assigned by the applicant for windblown dust PM₁₀ emissions (2.51E-06) the same as the 0.11 tons/acre/month value cited by the Midwest Research Institute?
4. Does the 0.11 tons/acre/month value translate into 10 lbs p/day? If so, how is this applied to dust emission calculations for active construction areas at the HHSEGS project site?

5. In calculating disturbed acreage and emissions factors, has the applicant factored in perimeter disturbance areas that extend beyond the buildings, heliostat placement, electrical trenching, etc.? If so, by what factors?

Recommendations

N/A

20. WORKER TRAVEL/TRUCK DELIVERIES: DUST EMISSIONS

Background

In Appendix 5.1F, Hidden Hills Dust Emission Factor Derivation, pg. 34, the applicant provides formulas and equivalents for PM₁₀ Dust Emissions factors. This included auto/pickup emission factor and truck delivery emission factors per vehicle miles traveled (VMT).

Comments

I was unable to locate where the applicant had calculated dust emission factors for Truck Deliveries (rated at 2.31 lbs of PM₁₀ for each Vehicle Mile Traveled).

While I understand that offsite Truck Deliveries dust emissions may not be fully applicable in relation to the 100 round trip mile analysis provided on pp. 18, many of these deliveries trucks will be delivering products throughout the project area. Due to the volume and nature of these truck deliveries, some measure of PM₁₀ dust emissions must be incorporated into the applicants' impact analysis.

Questions

1. Is there an analysis for PM₁₀ and PM_{2.5} dust emissions for Delivery Trucks? If so, where is it located?

Recommendations

- If no analysis has been done regarding Truck Delivery PM₁₀ and PM_{2.5} dust emissions at the project site, a supplemental emissions analysis should be submitted.

21. AWD GATORS/ATV DUST EMISSIONS

Background

In Appendix 5.1F, Hidden Hills Dust Emission Factors, pg. 35, the applicant lists AWD Gators under Miscellaneous Equipment. Dust emission calculations are cited as N/A under all columns.

Comments

I had previously assumed in subsequent emission calculation sheets that AWD Gators were a brand of ATV's. After seeing no dust emission calculations for the Gators, I am no longer sure.

On online search of AWD Gators found the most relevant hit in relation to the HHSEGS project was an ATV "Gator" model made by John Deere.



Questions

1. What is an "AWD Gator" and what function will it perform during the HHSEGS construction phase of the project?
2. If the John Deere "Gator" is what the applicant is referencing in their construction equipment, why are there no dust emissions calculations included in their impact analysis?
3. If the AWD Gator is not an ATV, where has the applicant listed and calculated impacts from ATV use at the HHSEGS project site, including estimated acreage disturbances and PM₁₀ and PM_{2.5} dust emissions?

Recommendations

- Provide detailed information and analysis regarding the use of ATV's on the HHSEGS project site.

22. FUGITIVE DUST: CUMULATIVE IMPACTS

Background

In the 2011-12-30 Supplemental Data Response 1A TN-63258, pp. 10, (AQ-5), the applicants response to questions regarding impacts to air quality associated with fugitive dust were: "Even at the locations of maximum impacts, at the project fenceline, construction impacts for the HHSEGS project are not expected to cause any ambient air quality standards to be exceeded with the exception of PM₁₀ for which standards are already exceeded."

In Section 5.1 Air Quality, Receptor Grid Selection and Coverage, pp. 52, the following is a partial description of how the applicant modeled and assessed air quality impacts.

"Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. A 250-meter resolution coarse receptor grid was developed and extended outwards at least 5 km"¹³.

“(Footnote 13: Although the modeling protocol indicated that the coarse receptor grid would extend up to 10 km from the fence line, the maximum impacts were very close to the project and a larger grid was not needed to identify significant impact areas.)”

“For the full impact analyses, a nested grid was developed to fully represent the maximum impact area(s). This grid has 25-meter resolution along the facility fence-line in a single tier of receptors composed of four segments extending out to 100 meters from the fence line, 100-meter resolution from 100 meters to 1,000 meters from the fence line, and 250-meter spacing out to 5 km from the fence line. Additional refined receptor grids with 25-meter resolution were placed around the maximum first-high and maximum second-high coarse grid impacts and extended out 500 meters in all directions. Concentrations within the facility fence line were not calculated. The regions imported in Geographical Coordinates for the USGS NED data are bounded as follows:”(Emphasis added).

In Appendix 5.1F, Construction Emissions, pp. 7, the applicant states: *“To assess impacts from fugitive dust, the facility site and the laydown area were modeled as one single area source covering a combined disturbed area of 2959.2 acres. The effective plume height for these two area sources was set at 0.5 meters in the modeling analysis.”*

Comments

According to the description of the receptor grids above, the maximum grid distance used was 5 km from the fenceline or 3.1 miles.

Based on my current understanding, the modeling simulated impacts at the fenceline that produced a fugitive dust release height of 0.5 meters. This modeling parameter indicated that dust impacts and plumes were very localized and were sufficiently dispersed within 3.1 miles of the fenceline.

Given the fact the HHSEGS will begin its construction phase by grading a 12 ft. perimeter around the project site, complete with fencing, I can see the necessity of modeling at the fenceline as this disturbed perimeter will be a constant source of fugitive dust emissions throughout the life of the project.

However, the description of those modeling parameters specifically cited the exclusion of fugitive dust and other PM₁₀/PM_{2.5} emissions resulting from any construction and operational maintenance that occur within the project site.

Is the applicant basing the appropriateness of excluding cumulative particulate matter within the project site from modeling analysis by assuming if impacts adequately dispersed from the maximum impact at the fenceline, impacts within the project site will also adequately disperse prior to reaching the HHSEGS perimeter?

Yet if this is the applicants' assumption, I fail to see how it answers the basic question of; where will the collective cumulative dispersion go?

From an operating position, the project will have two facility areas emitting particulate matter, then a variety of operating equipment and associative vehicles as well as an undisclosed number of drive zones (roads surrounding the perimeter of each heliostat field) that will be continuously used due to mirror washing activities.

Additionally, there will be continuous disturbances to "mow" approximately 3,000 acres of vegetation to maintain the 18" height requirement. The mowing activity will also most likely be on an accelerated schedule within a year or two after operations begin due to the impact of increased soil moisture from mirror washing activities resulting in significant increases in fast growing noxious and invasive plants.

The construction portion of the project will require driving, grading, back filling on an unknown number of acres, an unknown removal of native soils, excavation on a large scale and a 195.4 acre-foot retention basin. It will also include digging hundreds of trenches required to lay electrical lines between the heliostats and connecting them to the main facilities. All terrain vehicles will be used to access each area in order to install the heliostat pylons, which it is reasonable to assume will disturb the majority - if not all - of the soils in the project area.

Despite a wide variety of analysis on emissions and air quality impacts provided by the applicant, the majority of it is segregated, separated and difficult to weigh from a cumulative impact perspective. The modeling of dispersion of particulate matter created only at the fenceline while simultaneously excluding impacts within the 5-mile project site itself is one of the many instances this segregation occurs.

Questions

1. Was an air dispersion model performed that incorporated fugitive dust and emissions impacts occurring within the HHSEGS project site combined with impacts at the fenceline? If not, why not?

Recommendations

- A cumulative analysis that combines all projected direct and indirect impacts of particulate matter and emissions resulting from the HHSEGS site to air quality site-specific to the Pahrump Valley should be made available in reasonably plain language for review by decision makers and the public regarding the project site and surrounding areas.

23. FUGITIVE DUST CONTROL: WATER TRUCK MODELING

Background

One of the BMP practices cited to reduce these impacts is the intent to use water as a significant tool to decrease erosion and fugitive dust emissions. Yet, during the construction portion of the project, the water trucks projected use is 10 hours a day (Appendix 5.1F, Hidden Hills Construction Equipment Schedule, pp. 20).

In the same Appendix, under Hidden Hills Dust Emissions Factor Derivation (pp. 32), the applicant derives dust emission calculations by factoring in an estimated application of water every 6 hours.

Comments

It is unclear how the equation used to determine dust control via water trucks will apply.

Questions

1. If the water trucks will only be operational 10 hours a day, what happens with dust emissions during the other 14 hours water is not being applied?
2. To determine dust emissions, was the equation that used water applications every 6 hours applied to a 24-hour period or was it only for the 10 hours the water trucks will actually be operational?
3. Water trucks will only be operational for 10 hours. If water is only applied every 6 hours, is it reasonable to assume that the water trucks will only apply water once on an exposed area during their shift?

Recommendations

- Clarify how dust emissions will be controlled via water, both during operational and non-operational hours and how this is factored in dust emission computations.

24. FUGITIVE DUST CONTROL: INADEQUATE IMPACT ANALYSIS

Background

The use of mitigation measures to deter fugitive dust emissions is a critical component of the applicants' impact and emission analysis for both the construction phase and operational requirements of the HHSEGS.

One such example is found in Section 5.11 Soils, Table 5.11-4, pp. 9.

TABLE 5.11-4
Mitigation Measures for Fugitive Dust Emissions

Mitigation Measure	Fugitive Dust Emission Reduction Efficiency	Efficiency Applied
Water active sites at least four times daily	61%	
Enclose, cover, water three times daily, or apply non-toxic soil binders, according to manufacturer's specifications, to exposed piles (i.e., gravel, sand, dirt) with 5 percent or greater silt content	84%	
Combination of above	85%	85%

Source: SCAQMD, 1993: Table 11-4.

Comments

As illustrated above, the use of chemical dust suppressants, soil stabilizers and soil binders to control fugitive dust emissions and prevent soil loss are critical components of the applicants' projections to reduce significant environmental impacts associated with the HHSEGS project.

Though mentioned liberally throughout much of the planning documents and recognized as a critical component of the planning process, no details or specific parameters relative to the actual implementation, quantity, type, kind, affected areas or impacts of using chemical soil stabilizers and/or soil binders are offered, discussed, or analyzed.

When reviewing available choices today regarding chemical dust suppressants, soil stabilizers and binders, the array of options is vast. These range from organic materials such as water, gravel, mulches of various sorts and vegetation controls to inorganic materials whose composition and environmental impacts are often unknown or even highly toxic.

In May 2002, the EPA website offers a publication titled, "[Potential Environmental Impacts of Dust Suppressants: Avoiding Another Times Beach](#)", An Expert Panel Summary.

Here, experts partially summarized the potential dangers associated with the use of chemical dust suppressants by stating:

“Most of the research on dust suppressants has been conducted by industry and has focused on the effectiveness (or performance) of dust suppressants, that is, the ability to abate dust. Little information is available on the potential environmental and health impacts of these compounds. Potential environmental impacts include: surface and groundwater quality deterioration; soil contamination; toxicity to soil and water biota; toxicity to humans during and after application; air pollution from volatile dust suppressant components; accumulation in soils; changes in hydrologic characteristics of the soils; and impacts on native flora and fauna populations.” (pp. 6)

Though a variety of legislation has been enacted to protect the environment from a host of hazardous and toxic materials, the need for expert discussion regarding chemical dust suppressants despite these laws was summarized as, *“Regardless, there is concern that since no one program addresses the use of dust suppressants, the enforcement of what is used as dust suppressants could “slip through the regulatory cracks.”*

Specifically relevant to the use of chemical dust suppressants, soil stabilizers and binders “slipping through the cracks” without adequate analysis has been found in multiple environmental review processes and decisions involving both the BLM and the CEC itself.

With respect to the CEC, they have recommended the use of Soiltac™ or its equivalent to be used at the Stirling Energy Systems Solar Two Project, the Calico Solar Power Project, and the Imperial Valley Solar Project.

So over two months ago, I contacted Soiltac™ and requested safety data as well as any peer-reviewed literature regarding its environmental impacts - but have yet to receive a response. There is no known way to request this same information from “its equivalent” as no equivalent is specified, much less subjected to an environmental review process.

With respect to the CEC’s recently issued decision approving mitigation measures for the use of chemical dust suppressants at Bright Sources Ivanpah SEGS, the specifications became even more vague as the CEC merely approved “chemical dust suppressants” of an unknown nature with its corresponding unknown impacts. The only requirement the CEC had was that the chemical would not harm “vegetation”; analysis of potentially harmful impacts to soil, water, wildlife, the human environment or public health risks were not required.

This pattern of failing to publicly disclose or evaluate chemical dust suppressants potentially affecting thousands of acres and their cumulative impacts was also repeated by the BLM in their final decision approving the Ivanpah SEGS.

BLM's final decision regarding soil wind and water erosion control is:

"Soil Wind and Water Erosion Control: The plan shall address exposed soil treatments to be used during construction and operation of the proposed project for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the proposed project site that would not cause adverse effects to vegetation; BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by the BLM Authorized Officer and the CPM prior to use."

This vague, unspecified, non-publicly disclosed or evaluated decision regarding the use of chemical dust suppressants, soil binders or soil fills was one of many such "to be determined" plans that would only be developed after the public review process was closed.

As a result of failing to disclose, analysis and review environmental impacts regarding the Ivanpah SEGS such as those outlined above, a lawsuit was filed by Western Watersheds Project challenging compliance to NEPA, FLMPA and other environmental protection legislation.

In efforts to investigate "what" chemical dust suppressants were comprised of and their possible impacts, a long-standing and significant environmental debate was brought to my attention - this being the "recycling" of coal ash.

Coal ash is derived as a result of filtering substances admitted to be highly toxic if distributed via air but allowed to be redistributed in concentrated form through a vast array of materials, many of which will be a significant component of the HHSEGS project site. These materials include raw feed for cement clinker (in kiln), cement replacement (in concrete), asphalt roads, parking lots, Road base/Sub-base, blasting grit, PVC pipes, structural fill and embankments, soil modification and stabilization, soil amendments, and possibly soil fertilizers.

Some highlights of researching the issue of coal ash include:

"Despite a scathing Office of Inspector General (IG) report earlier this year taking the agency to task for failing to complete a single safety review on the 60 million tons of coal ash and other combustion wastes entering the U.S. marketplace each year, EPA indicates that it has no intention of doing any risk assessments in the near future."

["EPA Refuses To Study Risks of Coal Ash Uses It Endorses"](#), 7/18/11
Public Employees For Environmental Responsibility (PEER)

"Coal ash contains 24 known pollutants, some of which, according to the National Research Council, are toxic even in miniscule quantities. Those toxins include: arsenic, boron, cadmium, chromium, hexavalent chromium, lead, mercury, and dioxins, along with other chemicals and compounds."

*["We Energies Bluff Collapses, Dumping Coal Ash Into Lake Michigan"](#), 11/02/11
Environmental News Service*

"The contaminants in coal ash are known to cause bladder, kidney, liver, lung, prostate, and skin cancer."

*["Fight Over EPA Clean Air, Coal Ash Rules Grip Congress"](#), 10/14/11
Environmental News Service*

"In August 2007, EPA published a draft risk assessment that found extremely high risks to human health and the environment from the disposal of coal ash in waste ponds and landfills."

"When coal ash comes into contact with water, these hazardous materials leach out of the waste and contaminate groundwater and surface water. These substances are poisonous and can cause cancer and damage the nervous system or other organs, especially in children. EPA has identified over 600 coal ash sites and documented at least 67 proven or potential cases of surface water or groundwater contamination from coal ash in at least 23 states."

"...On April 24, 2000, EPA finally completed that regulatory determination and found that "coal combustion wastes could pose risks to human health and the environment if not properly managed" and "national regulations under subtitle D of RCRA are warranted for coal combustion wastes when they are disposed in landfills or surface impoundments." Despite that finding and subsequent studies revealing high levels of toxins and carcinogens in coal ash, EPA has failed to enact any rules."

*["Coal Ash: A National Problem Needs A National Solution"](#), July 2009
Earth Justice/Sierra Club*

Of course it is not known if any or all of the materials used in the construction and operation of the HHSEGS site - including chemical dust suppressants, soil stabilizers, soil binders and soil fill - will contain coal ash byproducts; and that is precisely the point.

What is known is, without in depth review of the specific products that will be incorporated in the construction and operations of the HHSEGS, products deemed critical in determining and/or reducing its environmental impacts, what is now a relatively pristine environment can be transformed into a cumulative toxic industrialized area that may potentially pose a significant public health risk instead.

Furthermore, given the past decisions of the CEC and other agency's failure to discuss, analyze, disclose or assess specifics or impacts of what has been deemed a critical component of reducing impacts to air quality, soil erosion, and vegetative resources, I have grave reservations regarding the application processes current trend.

Though admittedly not complete, so far I have seen no data request or concerns from CEC staff regarding specifics related to the use of chemical dust suppressants, soil stabilizers, binders or fills and fear they will continue the trend of failing to incorporate, disclose or review what the true environmental impacts of the HHSEGS will be to the local community and the environment.

Questions

1. Since Bright Source is farther along in the construction phase of the Ivanpah SEGS, has the demands of its construction yielded any more specific plans, product information and safety data regarding similar mitigation measures to be utilized for fugitive dust control and soil erosion at the Ivanpah site?

Recommendations

- Require specific product information, including safety data, for all products utilized to deter fugitive dust emissions and reduce soil erosion by the HHSEGS during its construction and operational phase as to be incorporated in the review of the impacts of the HHSEGS.
- Once specific products are identified for use, submit – if possible - any independent and/or environmental research papers or studies on the products public health risks and environmental impacts.
- Require open public disclosure and comment opportunities regarding cumulative impact analysis of specific products relative to air quality, soil, water, vegetative resources, wildlife, and public health risks during the current review process instead of incorporating “to be determined” plans after opportunities for public participation have been closed.

CULTURAL RESOURCES

"The environmental justice framework.....attempts to uncover the underlying assumptions that may contribute to and produce differential exposure and unequal protection. It brings to the surface the ethical and political questions of "who gets what, when, why, and how much."

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.

CULTURAL RESOURCES

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. CATHEDRAL CANYON: A RELIGIOUS/SPIRITUAL SITE

Background

In Section 5.3, Cultural Resources, pp. 21, the applicant provides a brief background regarding a famous cultural and spiritual resource of both local and international fame, Roland Wiley's Cathedral Canyon.

"Cathedral Canyon, located on the Hidden Hills Ranch property, was constructed by Wiley. The eclectic mix of statuary included the Christ of the Andes and Albert Einstein. Quotes were placed in steel-framed message boards along the trail to the canyon and Wiley installed a 200-foot suspension bridge that spanned the canyon (McCracken, 2009)."

Comments

Given the spiritual and cultural impact Cathedral Canyon had on tens of thousands of visitors since its inception in the early 1970's, I really felt concerned that this lone paragraph failed to communicate its beauty, its inspiration or its religious/spiritual significance to all who had ever experienced this amazing site.

I also grew even more concerned after realizing that Bright Source has not really made it clear if the construction of the HHSEGS will require the partial or full demolition of Hidden Hills – including Cathedral Canyon – and my concern was compounded yet again as I listened to a CEC Cultural Workshop where a representative from Bright Source seemed to successfully steer all "spiritual and cultural" discussions with CEC Staff to focus exclusively on Native American issues.

Though Cathedral Canyon's current state is dilapidated and in shambles due to neglect, extensive vandalism, and legal concerns from Wiley Trusts lawyers, (which according to my current understanding were the impetus for the removal of the staircase and bridge due to fears of lawsuits), I believe its important to let people know that the approval of the HHSEGS may result in the permanent loss of this site with no hope of ever restoring it to its former beauty or wonder.

Therefore, I believe it is important to put something more into the public record about the significance of what Cathedral Canyon was – to Roland Wiley, to me, and to countless others – because it was beautiful and its permanent loss would really be tragic.

From a personal perspective, Cathedral Canyon was a source of inspiration, delight and connection to a “spiritual presence” for many years. My first introduction to the canyon was during a community potluck hosted by Roland Wiley himself when I was somewhere around the age of seven or eight years old.

At that time, I was just stunned at this magical place located just a few miles from my home with all its lights, colors and spiritual themes. I ran up and down the then rock-cut staircase (at the time), crossed the bridge at least a dozen times and took far too many trips to the bathroom because I just couldn’t get over my fascination with how they had embedded rooms in the rock walls – with running water, flushing toilets, lights and my first exposure to adobe textured walls.

Because of my proximity to Cathedral Canyon, I visited it many, many times over the years and can also honestly say that one of the most profound “spiritual” experiences of my life occurred there about the age of twelve.

Though on private land, the canyon was always open to the public anytime day or night. Because it was still in the early years before it became really famous, there were lots of times no one was around for days at a time. So one summer evening, myself and some other local kids decided to have a slumber party on Cathedral Canyon’s bridge. We laid out our sleeping bags along its walkway and after running up and down the canyon staircases until we were spent (there was a circuit breaker switch that turned the canyon lights on and off), we shut out the lights and laid on the bridge talking and giggling until we finally dropped off to sleep.

It was there, with a slight breeze ever so gently swaying the bridge and a thousand million billion stars blazing in the inky dark sky - no definitive horizon in sight, that I had one of the first spiritual experiences of my life of “knowing” I was connected to something more. As I lay there suspended in space, floating in a sea of stars, I was awestruck at the magnificence of the night sky and felt incredibly humbled by the magnitude of what I was “part of”.

This powerful experience left a deep impression on me of how to prioritize what is really important. Even to this day, sometimes when I’m feeling overwhelmed by all the petty details of life - I will remember that night and it helps put things in perspective.

My second most influential experience at Cathedral Canyon occurred shortly after I had come home from college and was feeling rather down. I decided to take a trip to the canyon, expecting quiet solace within its walls lit by twinkling stars above to think things through - but to my surprise, the Cathedral was in full glory instead!

It was night and someone was performing some maintenance. All the lights were on, the stained glass windows were lit up, the waterfall was pouring down, and to my utter amazement, the stereo system was playing Jean Michel Jarre’s Oxygene, a newly discovered favorite. Instead of finding quiet and emptiness, I found life, color, music and inspiration at every turn. It was just what I needed and when I left, I was uplifted and filled with hope.

However, I was not the only one profoundly affected by Cathedral Canyon as recorded by this Pahump Valley Times article, ["The Man Who Built Cathedral Canyon II"](#) by Bob McCracken (the same author Bright Source quoted in the AFC files.) Subtitled, *Roland Wiley's Devotion To Spirituality, Non-Denominational Faith Legendary in PV*, Mr. McCracken explains, *"The canyon attracted thousands of visitors every year. There was no admission, and you were on your own when visiting.....People loved it, as proved by the registration book Roland maintained. Visitors from around the world made comments, with many saying the message and serenity found there were better than any church; others said the place was more enjoyable than Las Vegas."*

Information on Cathedral Canyon can also be obtained from The Center For Land Use Interpretation under a Cultural Category, Archive ID #NV3158. The Center describes Cathedral Canyon as, *".....a small natural canyon which has been transformed into a rambling grotto of icons, statues, and text panels. Religious in overall tone, the site has many secular elements as well, and, though untended, is open to the public. It is best viewed at night, when the multicolored lighting system illuminates the individual displays, which are laid out along the main pathway, and tucked into the walls and bushes in the canyon. Cathedral Canyon was built mostly by Roland Wiley, a lawyer from Las Vegas, who bought the 15,800 acre Hidden Hills Ranch, on which the canyon lies, in 1972. Over the next thirty years, until he died in 1993, Roland worked on the canyon, mainly on weekend trips to the site from Las Vegas. Vandalism has recently taken its toll on the remote site, though."*



Photo of Cathedral Canyon prior to vandalism destroying the site. Sometime after owner/visionary Roland Wiley died, bridge and staircase were removed to prevent legal repercussions. There are no known photos or videos of the site at night, even though it was considered its most "inspiring" time. Photo source: The Center For Land Use Interpretation, date unknown.

On online search did reveal that someone was able to video Cathedral Canyon before the bridge and staircase were removed. The producer of the video, "[Classic Cathedral Canyon near Pahrump, NV \(1996\)](#)" said, *"I post this video as tribute to Wiley and his vision of cathedral in the desert."*

I wanted to post the link to this video of Cathedral Canyon for two reasons, the first of which is obvious. However, there are some very interesting comments on the site that deserve mentioning as well.

The first set of comments talks about how sad and shameful the destruction is as well as one comment requesting directions to visit the site – even though they know its no longer intact!

The second comment was posted about a month ago and makes a very curious and patently false statement: *"Cathedral Canyon has been torn down and leveled about 3 years ago."*

How do I know it's patently false? Because I took photos of what's left of Cathedral Canyon a few months ago.



The only way left to get in the canyon since the removal of the staircase.....12/20/11



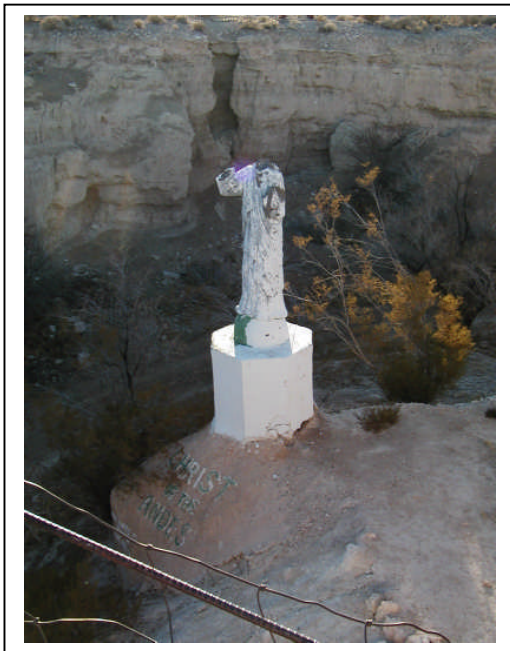
What's left of the bridge....12/20/11



Where the waterfall use to flow.....12/20/11



Where one of the stained glass windows used to shine...12/20/11



What's left of "Christ of the Andes" after being used for target practice.....12/20/11.



Found at base of Cathedral Canyon's "Christ of the Andes" sculpture. 12/20/11.

The Cathedral Canyon video isn't the only place I ran into comments lamenting its loss. The Roadside America website also posted a small page about [Cathedral Canyon](#) and here is a comment posted on 1/07/09. "**Cathedral Canyon Church – Desecration.** When I visited this historical area I knew at first glance that it was a sacred and holy place. As I further gazed and went to explore the site, I was dismayed as to what had occurred over the years, total destruction to what was deemed at one time to be a very sacred and holy place. I am upset and feel distraught as to what has happened there. I hope that what is currently left will be preserved so that future generations can see or view what was once a beautiful sanctuary."



Where stained glass window frames are still embedded while erosion takes its toll on the Canyon. 12/20/11

Another reason for wanting to submit more information about Cathedral Canyon, besides its historical, cultural and religious/spiritual significance as an isolated site is – it helps communicate a larger picture of the area’s overall spiritual significance to those who know it.

It is interesting to note that the developers of St. Theresa have also recognized a spiritual quality about the area. Unfortunately, they appear to be mainly seeking to capitalize on it by developing commercial interests versus preserving it in its natural state or using a restored Cathedral Canyon as the focal point for their “sanctuary”.

There is one more piece of history with respect to the areas religious/spiritual significance that has been passed down to me - but it concerns local Native Americans. While I felt it is extremely important that people know about Cathedral Canyon; its history, cultural and spiritual significance because it may be lost forever, I did not feel it was appropriate (or perhaps legal) to submit the Native American “story” in a public forum - so I’ve included it in a separate document for CEC review only.

Questions

1. Has CEC Staff had any discussions or analysis of the impacts of the HHSEGS on the historic, cultural and religious/spiritual values of Cathedral Canyon?
2. Does the CEC have an obligation to publicly disclose the impacts of the HHSEGS to this site as approval of the HHSEGS may cause its irreparable and irrevocable loss?
3. If approved, what potential impacts will the HHSEGS make to Cathedral Canyon?
4. Has the applicant submitted legal boundaries of the proposed HHSEGS site?
5. If the project is approved, will the HHSEGS project site be able to expand in any direction if the owner/operator's so desire?
6. Would the applicant/owners of the HHSEGS site consider donating Cathedral Canyon to the state for public enjoyment, preservation and/or restoration of its historical, cultural, and religious/spiritual values?

Recommendations

- The CEC needs to begin public communication and dialog about Cathedral Canyon and the potential impacts of the HHSEGS. There is already information publicly available regarding Cathedral Canyon's significance and it has clearly been severely damaged from vandalism. In this instance, invoking confidentiality clauses is allowing decision makers to exclusively know – and decide - what impacts the HHSEGS will have without communicating to the public what is at stake and what may be lost. Therefore, it fails to serve the public interests by invoking confidentiality clauses that prevent disclosure, discussions and analysis about direct, indirect and cumulative impacts to Cathedral Canyon from the HHSEGS project site.

ENVIRONMENTAL JUSTICE

"The dominant environmental protection paradigm manages, regulates, and distributes risks. It also institutionalizes unequal enforcement, trades human health for profit, places the burden of proof on the "victims" and not the polluting industry, legitimates human exposure to harmful chemicals, pesticides, and hazardous substances, promotes "risky" technologies, exploits the vulnerability of economically and politically disenfranchised communities, subsidizes ecological destruction, creates an industry around risk assessment and risk management, delays cleanup actions, and fails to develop pollution prevention as the overarching and dominant strategy."

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.

ENVIRONMENTAL JUSTICE

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. 2010 CENSUS STATISTICS

Background

In Section 5.10 Socio-Economics, pp. 6, the applicant describes why they failed to incorporate 2010 census data in their analysis to determine impacts for Environmental Justice purposes.

"The racial minority and Hispanic origin data are from the 2000 U.S. Census because the 2010 Census data were not yet available at the census block level at the time of the preparation of this analysis. It should be noted that the population numbers retrieved from the U.S. Census Bureau for minority (Table 5.10-4) and low income (Table 5.10-5) data are not the same for each of these Census Block Groups." (Emphasis added.)

Comments

The 2010 census data might now be available. It is also not clear what the location of the "census block" being used in this analysis actually is.

Questions

1. What is the perimeter/location of the census block used in the Environmental Justice analysis, how much area does it actually cover?
2. How does this area compare to the location of residents in Charleston View? To those within a 6-miles radius of the boundaries of the HHSEGS?

Recommendations

- Revisit the 2010 census data for the impacted area and ascertain if it is now available. If not, attempt to submit a special request to the Census Bureau and stipulate this information is necessary to help evaluate the impacts of the HHSEGS to affected landowners.

2. CHARLESTON VIEW: COMMUNITY STATUS

Background

Summary

The applicant presents conflicting information regarding the actual population and status of Charleston View and/or residents in the area.

A) The following are quotes found scattered throughout the applicants' documents.

"The unincorporated area near the HHSEGS site is sparsely populated. The closest community is the town of Pahrump, approximately 19 miles north of the site on the Nevada side of the state line. The community of Sandy Valley, Nevada, lies 19 miles to the southeast and the community of Tecopa, California, is located 21 miles to the southwest. Greater Las Vegas lies about 45 miles east of the project area in the adjacent Las Vegas Valley". (Section, 5.2 Biological Resources, pp. 10.) (Emphasis added)

"The closest community to the project site is Pahrump, Nevada, located approximately 18 miles north of the project area, with a 2010 projected population of 36,441." (Section 5.6 Land Use, pp. 7.) (Emphasis added.)

"The area of most concentrated development in Charleston View occupies 0.2 square miles of land along Tecopa Road. As of 1992, the population of Charleston View was 36 with 29 housing units (Inyo County, 2001)." (5.13 Visual Resources, pp. 5.) (Emphasis added.)

"In addition, there is a cluster of development know as Charleston View that is located on the south side of Tecopa Road, opposite the project site. Most of the developed properties are concentrated in a two-block-wide corridor bounded by Silver Street on the west and which extends from Tecopa Road on the north, seven blocks south to Charity Lane. The development pattern consists of a mixture of wood frame structures and mobile homes. As of 1992, there were 29 residences in Charleston View (Inyo County, 2001). Because many of these residences are not occupied on a full-time basis, this area's permanent population is lower than the number of residences might suggest. Charleston View's roads are unpaved and there is no telephone service other than cellular service. At present, there are no commercial activities in Charleston View." (Visual Resources, pp. 6) (Emphasis added.)

"In addition to the road grid, a few lots outside of the project site have been developed. In total, there are fewer than 50 houses and trailers in this area. The nearest residence to the HHSEGS property boundary is approximately 300 feet west of the fenceline. The nearest residence to any power block equipment is approximately 3,500 feet south of the Solar Plant 2 power block and about 950 feet south of the project's southern boundary." (Section 5.11 Soils, pp. 4),(Emphasis added.)

“Based on the 2000 Census, the total population derived from the Census Block Group having population within a 6-mile radius of the HHSEGS site is approximately 638.” (Appendix 5.10.A, Environmental Justice, pp. 4) (Emphasis added.)

B) In Section 5.6, Land Use, pp. 10, the applicant gives the following response to the question, “1. Will the project physically divided an established community?”:

“No impact. The project would not physically divide an established community because the project site would be located in a sparsely populated area with no established communities within 11 miles. Some dwellings, including trailers, are located to the south and east of the project site, but these scattered buildings do not constitute a community. Therefore, the project would result in a finding of no impact under this criterion.” (Emphasis added).

In Section 5.13, Visual Resources, pp. 13, the applicant states:

“Development within this rural residential area consists of a mixture of wood-framed and mobile home structures. No commercial, institutional, or industrial development is present within the community.”

C) In the CEC Transcript Information Hearing regarding Hidden Hills, 11-03-11, pp. 11, Charleston View resident Gary Barkley stated:

“I live in Charleston View and I basically don’t know anybody that works there. It’s a very poor community. Most of the people are unemployed. Many of them are welfare, disability.”

Comments

Population numbers, estimates and community definitions seem to be used in whatever fashion best suits the applicants needs.

In almost all instances, the applicant denies the “community” of Charleston View even exists as shown by the constant reference to Pahrump as the nearest community through the AFC files. In those instances when the applicant must address the fact that residences are located merely a few hundred feet away or that Charleston View lies directly south from the proposed project site, the applicant negates and/or minimizes current residential populations.

The first example is when the applicant uses the 1992 Inyo County statistics of “*the population of Charleston View was 36 with 29 housing units*”, then discusses this statistic as if it were current by negating it further with, “Because many of these residences are not occupied on a full-time basis, this area’s permanent population is lower than the number of residences might suggest.”

The second example is when the applicant gives what appears to be a current estimate of “housing units” through visual observations, as no official source is cited and exact footage to the nearest residences is provided. Here, the applicant observes, *“fewer than 50 houses and trailers in this area.”*

Yet, despite the applicants’ own description of the area, a population figure of 638 people taken from the 2000 Census is then used to determine environmental justice statistics, figures and impacts. Not surprisingly, the applicant yields a “No Impact” conclusion to low income or minority residents.

When reviewing the list of landowners provided by the applicant in Appendix 5.1A, Landowner Information, though the majority of landowners are registered to a single address, the remaining landowners on the list are dominated by Hispanic names.

In addition to discussions and analysis that dismiss Charleston View as outlined above with the corresponding “No Impact” conclusion, the applicant has also erased Charleston View from the majority (if not all) of the maps used to present the area and the proposed project site.

Questions

1. Since there seems to be a wide discrepancy in the applicants’ discussions between what the closest community is and what the affected populations are, how valid is the applicants’ determination that no impacts to low income or minority people will occur as a result of the HHSEGS?
2. How can the applicant already issue a determination of “No Impact” to minority populations being disproportionately affected by the HHSEGS when their own landowner list contains predominately Hispanic names?
3. Despite resident Barkley’s statements of Charleston View being a “very poor community”, why has the CEC yet to challenge the statistic’s provided by the applicant that yielded a “No Impact” determination regarding the true status of current residents of Charleston View in relation to environmental justice?
4. Does the applicants’ dismissal, negation and erasure of Charleston View and its residents as related to the impacts of the HHSEGS already qualify as violations of environmental justice against an obviously low income community?
5. Since the applicant has already decreed Charleston View is not a legitimate community and therefore ignored or minimized analyzing the impacts of the HHSEGS to us, what remedies can residents ever hope to have besides lip service from the applicant used to get the application approved?

Recommendations

- Consider the applicants' current determination of "No Impact" of the HHSEGS to low-income or minority populations' invalid. Develop and initiate an independent survey method of landowners within a 6-mile radius of the boundaries of the proposed HHSEGS site in efforts to determine the true status of issues related to environmental justice impacts to those most likely to be affected if the HHSEGS application is approved.
- Since extensive surveying is being requested and performed for eagles, bats, tortoises and rare plants in the area, an equal or greater effort should be made to survey and determine current, realistic statistics and figures of residents within Charleston View and the surrounding area with respect to issues pertinent to determining environmental justice impacts. This could include:

-Mailing surveys to residents that request pertinent information related to Environmental Justice issues under an anonymous format with pre-paid postage for its return.

-Door-to-door attempts to contact residents with same surveys as above. If the resident is available and open to answering questions at the time, it could be immediately completed. If not, the surveyor could leave the survey at the residence with a request to complete the information and return it by mail with a pre-paid postage envelope.

-A notification letter from the CEC with a phone contact for a CEC staff member that outlines the information being requested that also assures the resident of confidentiality if the resident so desires.

3. AREA CLASSIFICATION

Background

In Section 5.2 Biological Resources, pp. 42, the applicant provides description of the proposed HHSEGS project site.

"Development within the area has resulted in the loss of natural resources and the transition of the valley from its original undisturbed natural setting to one that, in many locations, represents an industrial or commercial setting. Three reasonably foreseeable future projects occur in the vicinity of HHSEGS: Pahrump Valley General Aviation Airport, Element Power Solar Project, and St. Therese Mission, a commercial facility."

In Appendix 5.4A, Preliminary Geotechnical Report, pp. 7, the independent preparers Nino & Moore provide a much different description of the proposed project site.

"At the time of our field activities, the site was essentially undeveloped and covered with sparse native desert vegetation."

Comments

The applicants' description of the area is at best, misleading. Though Pahrump itself has had a major expansion in commercial developments over the last 20 years, the areas these are concentrated in are approximately 25 miles away; and it still has only one traffic signal in the whole town.

But Pahrump is not where the applicant proposes to build the HHSEGS site. Throughout all the photos the applicant has provided regarding the project site, there is only desert floor stretching as far as the eye can see. As Nino & Moore more accurately describe, the site is essentially undeveloped and could not even be remotely considered representing a "industrial or commercial setting" that has lost its natural resources.

As for St. Theresa's Mission, the first work performed at the site was just shortly before Bright Source filed its application. There's a big difference between less than 20 acres predominated by meditation gardens, dog parks and a children's playground and the almost 3,300 acres the HHSEG will absorb. The HHSEGS is the only "industrial or commercial setting" reasonably foreseeable in the future and only it will be responsible for the "loss of natural resources".

Questions

1. If the applicant will minimize, negate, slant, spin, and/or mislead now, what are they going to be like when the project is build?
2. How can they be trusted when it comes to compliance, accurate reporting of the sites impacts during operations (i.e., hazardous materials and releases) and protecting the environment and community?

Recommendations

- Require independent monitoring of sites operations and impacts. This should include, but is not limited to, establishing an independent air quality station (possibly connected to Inyo County via satellite feed), annual independent soil and water analysis paid for by the owner/operator as a condition of the permit, meters on water and gas use at the project site accessible by officials outside the projects perimeters as well as requiring the contractor responsible for offsite waste water removal to file quarterly logs with Inyo County that tracks the amount of water removed from the site.

4. COMMUNITY TELEVISION/RADIO RECEPTION

Background

In Section 3.0 Transmission System Engineering, pp. 4, the applicant describes the possible affects of high-voltage transmission lines.

“The electrical effects of high-voltage transmission lines fall into two broad categories: corona effects and field effects. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone.”
(Emphasis added.)

Comments

This was the only reference I could find regarding the possible adverse affects of the HHSEGS project on local television and radio reception.

Reception of any sort at Charleston View is already weak, not just for radio and television but often for cell phones too. My parents rely on the “old fashion” antenna for their television reception with the predominate reason being, they cannot afford an alternative. At this time, the majority of the television signals come from Pahrump with some still broadcast from Las Vegas. However, this may soon change with all future signals being broadcast from Pahrump - but this subject is currently unclear. All total, they receive between 10-15 channels, some better than others.

Because many of the television signals are being received from Pahrump and the line of the proposed transmission lines appears to create almost an electrical fence between the two areas as well as the current lack of information regarding this subject, there are concerns that television signals might become significantly disrupted. While the current reception is admittedly weak, it is all some of the residents have.

Questions

1. Is the corona's affect on reception localized to those in the immediate vicinity of the transmission lines or does it have a much broader impact? If so, how far?
2. Will the corona cause impacts to radio and television reception in Charleston View?

Recommendations

- If the HHSEGS project becomes responsible for the loss or significant disruption of television and/or radio reception to residents, it should be responsible for costs associated with mitigation measures to replace it, not local residents.

5. ENVIRONMENTAL RISKS

Background

On June 9, 2011, Bright Source Energy, Inc. stated in Amendment No. 2 to Form S-1 [Registration Statement](#) to the U.S. Securities and Exchange Commission, that:

"We generally do not maintain insurance for certain environmental risks, such as environmental contamination."

Comments

The HHSEGS will be responsible for transporting and introducing huge quantities of chemicals, pollutants and hazardous substances to the project site and surrounding environment. Though the quantities of these materials are often measured in "tons", the applicant consistently maintains these introductions will be "less than significant" to local resources such as air, soil, vegetation and water.

In addition to the currently listed chemicals, pollutants and hazardous substances required for the construction and operations of the HHSEGS, it is also quite reasonable to predict the introduction of additional unlisted substances of unknown qualities and quantities. These will include chemical soil stabilizers, chemical dust suppressants, chemical soil binders and fills, as well as the large scale use of herbicides and pesticides that will become necessary as a direct result of the increased moisture made available to soil and vegetative resources due to continuous mirror washing activities.

While the proposed HHSEGS site promotes its environmental impacts as less than significant, statistics related to the affect of industrialization on human health and the environment state otherwise.

Questions

1. Since Bright Source generally does not carry insurance against environmental contamination, who will be the responsible party for financing clean up or mitigating damage of the HHSEGS project site in the event its operations result in contaminating the environment and/or local residents?

Recommendations

- Insure that all substances, chemicals, pollutants, and hazardous materials to be utilized during the construction and operational phase of the HHSEGS are publicly disclosed, analyzed and mitigated prior to approval of the project. Providing a complete public record of these substances may assist local residents in obtaining compensation and/or justice in the event of environmental contamination resulting from the sites operations.
- Require Bright Source or any future owner/operator to carry insurance against environmental risks including environmental contamination as a condition of the permit over the life of the project.

6. SECURITY

Background

In the 2011-11-17 Data Response Set, 1A, under Background – Law Enforcement, pp. 18, the following comment by CEC Staff was submitted.

“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.”

Comments

Staff was incorrect in their assertion that the only reference to security was in the discussion of access roads and drive zones. One other reference to security measures to be taken at the site is located in Section 5.14, Waste Management, pp. 17.

“For a temporary closure, where there is no release of hazardous materials, facility security will be deployed on a 24-hour basis, and the CEC will be notified.” (Emphasis added.)

The applicant went on to add:

“Where the temporary closure is in response to facility damage, or where there is a release or threatened release of hazardous waste or materials into the environment, procedures will be followed as set forth in the Hazardous Materials Business Plan (HMBP). The HMBP is described in Section 5.5, Hazardous Materials Handling.” [and] *“Once the immediate problem of hazardous waste and materials release is contained and cleaned up, temporary closure will proceed as described for a closure where there is no release of hazardous materials or waste.”*

In efforts to determine if on-site security would also be deployed 24-hours a day in the event of a release of hazardous materials into the environment, Section 5.5, Hazardous Materials Handling was cross-referenced. The applicant stated on pp. 13, that:

“As shown in Table 5.5-4, many of the hazardous materials to be used onsite are non-flammable. The lubrication oil and diesel fuel are flammable and will be handled in accordance with an HMBP to be approved by the Inyo County Department of Environmental Health Services. Hydraulic oil, which is classified as combustible, will also be handled in compliance with the HMBP. With proper storage and handling of flammable materials in accordance with the HMBP, the risk of fire and explosion at the generating facility will be minimal.” (Emphasis added).

Here is yet another “to be determined” management plan that will most likely occur after public involvement and disclosure have been closed.

In the documentary film, [Toxic Soup](#), several stories are shown regarding strict onsite security as well as at every level of the corporate ladder, which block, obscure, prevent and/or prohibit any photographing, filming, interviewing or discussions of plant operations or those responsible for deadly environmental contamination to the surrounding communities.

Probably the most famous recent case of “site access being strictly controlled” has been documented both during and after the Deep Water Horizon disaster in the U.S. Gulf Coast. Journalists were repeatedly refused access to the site, prevented from flying over the area and attempts to interview workers were blocked. Media accounts of the ongoing plight of those still deeply affected by the disaster have all but dried up – just not the ongoing community devastation.

Bright Sources proposal to initiate 24-hour security in the event of temporary closure indicates residents and media can possibly expect more of the same; security is beefed up - not to protect the site from outside threats - only to prevent possible exposure of events occurring inside.

Questions

1. Since increasing jobs is one of their major selling points of the HHSEGS, why won't the plant employ 24-hour security all the time instead of only during temporary shut downs?
2. Will the HMBP be developed after the opportunity for data adequacy and cumulative impact analysis, mitigation measures and public involvement is closed?
3. Will there be any public notifications, disclosure or discussions by Inyo County regarding the plans to handle hazardous materials at the site?

Recommendations

- Since the handling and release of hazardous materials can significantly affect local residents and cause severe adverse environmental impacts, ensure public notification and disclosure of hazardous materials handling plans that are drafted and approved by Inyo County or the appropriate agency.
- Compile a comprehensive list viewable in a single location of all the management plans referenced throughout the applicants' documents required for the construction and operation of the HHSEGS but are currently being excluded from the review process. This would help determine the extent and scope of additional planning requirements that will not be subject to disclosure, data adequacy and cumulative impact analysis, mitigation measures or public review.

7. LEGITIMATE COMPLAINTS

Background

In Section 5.7, Noise, pp. 14,

“Throughout the construction and operation of the project, the project owner will document, investigate, evaluate, and attempt to resolve all legitimate project-related noise complaints.” (Emphasis added).

In the 2011-11-17 Data Response Set, 1A, pp. 23, the applicant states:

“The HPP would also include a monitoring plan that would obtain field measurements in response to legitimate complaints, verify that the plan would avoid creation of hazards related to reflected light, and provide requirements and procedures to document, investigate, and resolve legitimate complaints.” (Emphasis added).

Comments

In addition to the applicants plans to deal with legitimate versus illegitimate complaints as outlined above, I also thought I remembered seeing a reference to an answering machine would be available 24 hours a day for community complaints but could not re-locate the reference.

Questions

1. What is the definition of legitimate versus illegitimate complaints and who defines them?
2. What is the estimated response time to legitimate complaints?
3. Will the owner/operator be the only location complaints can be filed with?
4. Will the owner/operator have to show a log of “complaints received” to outside agencies in order to legitimize them and/or investigate the complaints if they have remained unresolved?
5. How many times must someone filing a complaint leave a message on the answering machine and receive no response before they are allowed to legitimately contact outside officials?

Recommendations

N/A

8. LIMITED LIABILITY & COMMUNITY

Background

In Section 1, Executive Summary, pp. 1, the applicant states,

“The project is being developed by Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC (collectively, the Applicant). Each of these entities will own its respective plant individually, and together the entities will own the shared facilities located in an onsite common area as tenants in common. Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC, are wholly owned subsidiaries of Hidden Hills Solar Holdings, LLC, which is in turn a wholly owned subsidiary of BrightSource Energy, Inc. (BrightSource), a Delaware corporation.”

Comments

The applicants’ first statement regarding the HHSEGS project lays the foundation of “limited liability”.

As a landowner that will be significantly affected by this project, this clearly defined “limited liability” strategy of separate but equal corporations overseeing plant operations causes me deep concern. This is common strategy employed by corporations to protect themselves from financial and legal consequences for their actions.

Questions

1. Why has Bright Source created two limited liability companies (perhaps three) to develop the HHSEGS project site?
2. If two distinct legal entities have been created to operate the HHSEGS, why is Bright Source being allowed to file one application and only subjected to one analysis for the licensing process?
3. Does Bright Source have to pay fees associated with two applications or one?
4. If the HHSEGS project site becomes responsible for creating adverse environmental impacts, what distinctions are there, if any, regarding the legal requirements and remedies that would apply to one corporation overseeing operations versus two?
5. If the HHSEGS becomes responsible for creating adverse environmental impacts, will attempts by the public to demand remedy or accountability require double the effort and financing through the necessity of separate filings, separate pleadings, separate cases, etc.?
6. Will the approval of the HHSEGS project site under separate corporations result in excessive burdens to the public, regulatory and/or judicial systems if accountability or remedy is required?

7. If over the life of the project, California fails to take legal action or seek legal remedies against the owners/operators the HHSEGS for adverse environmental impacts (case overloads, lack of funding, conflict of interests and/or regulatory capture, etc.), what other sources for legal actions and relief will be available to low income and/or minority residents in Charleston View and others who may be affected?

8. A common legal remedy is to levy fines against corporations for environmental violations or other applicable laws. If over the life of the HHSEGS project, fines are levied against the owner/operators for damages to the environment or residents, where will the “fine” money go - to the state of California or to those directly impacted by the violations?

Recommendations

N/A

9. ACCOUNTABILITY

Background

On June 23, 2010, the Inyo County Planning Department issued a Notice of Decision and Approval of Conditional Use Permit for the St. Theresa Mission. One of the conditions of the permit is:

B. CONDITIONS OF APPROVAL

1) Hold Harmless: The applicant, landowner, and/or operator shall defend, indemnify and hold harmless Inyo County, its agents, officers and employees from any claim, action, or proceeding against the County, its advisory agencies, appeal boards, or its legislative body concerning Conditional Use Permit #2010-02/St. Therese Mission or applicant’s failure to comply with conditions of approval.

Comments

N/A

Questions

1. If the HHSEGS project is approved by the CEC, will they also issue legal disclaimers?
2. If the CEC approves the HHSEGS without applying due diligence or satisfying adequacy review mandates, can any of its agents, officers, employees, advisory agencies, appeal boards or its legislative body be held liable for their actions?
3. Will a legal disclaimer also be issued by Inyo County for any future management plans it approves relative to the construction and operation of the HHSEGS site?

10. WORLD CLASS LEVERAGE VS THE PEOPLE

Background

The following quotes were taken from Bright Source Energy's Amendment No. 2 filed on June 9, 2011, with the Security Exchange Commission.

"In addition to our relationship with Chevron, we have strategic relationships with global, industry-leading companies, including Alstom, Bechtel and NRG Solar. In order to accelerate the adoption of our systems, we are leveraging these relationships and our world-class partners' local expertise in domestic and international markets to pursue expansion opportunities more rapidly and cost-effectively than might otherwise be possible."

"Other strategic initiatives to enhance the Company's positioning for future growth, including research and development, legislative initiatives, and enhanced oil recovery (EOR) opportunities: At year-end, management considered this goal to be 90% completed. The Company made very good progress on most fronts. R&D completed the supercritical design and the sputtering technology. On the legislative front, the Company successfully obtained a change in de minimus law and regulations. The Company successfully obtained an extension of 1603 grant for one more year and established the foundation for further tax reform. Thermal EOR progress was consistent and successful." (Emphasis added.)

Comments

Bright Source is capable of changing both laws and regulations and "leveraging their relationships with world class partners."

Questions

1. What laws, regulations and relationships provide equal protection for those who may be directly affected by the construction and operation of the HHSEGS and can help balance Bright Sources political and economic clout?

Recommendations

N/A

HAZARDOUS MATERIALS

“An estimated 40 percent of world deaths can now be attributed to various environmental factors, especially organic and chemical pollutants. Approximately 80,000 different chemicals are now in commercial use with nearly six trillion pounds produced annually in the United States. More than 80% of these chemicals have never been screened to learn whether they cause cancer, much less tested to see if they harm the nervous system, the immune system, the endocrine system or the reproductive system. The current U.S. approach is also not based on real life exposures since people and animals are not exposed to one chemical in isolation, but rather are exposed to an array of toxic chemicals. Of the top 20 chemicals reported to the U.S. Federal EPA under the Toxic Release Inventory (TRI) as those released in the largest quantities in 1997, nearly 75 percent are known or suspected neurotoxins.”

*“Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities”
A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.*

HAZARDOUS MATERIALS

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. SEGS: HISTORICAL EMERGENCIES

Background

In a Record of Conversation (ROC) titled, "San Bernadino County Sheriff Contact (TN-63791)" dated 2/24/12, Steve Kerr, Planner I for the CEC, Siting, Transmission and Environmental Protection Division, requests information regarding historical contacts to the San Bernardino Sheriff's Department for other SEGS's as well as recent construction at the Ivanpah SEGS site. Mr. Kerr originally requests:

"I'd like to get a sense of how often they have been contacted to respond to incidents at some of the facilities in the county that have been in operation for many years such as the Kramer Junction, Daggett, and Dry Lake SEGS projects, and also if they've received calls to go out to the Ivanpah construction site at all. This might help give us some frame of reference when reviewing the needs assessment letter we just received from the Inyo Co. Sheriff related to the HHSEGS project."

Comments

The resulting email trail and responses to Mr. Kerr's original request get rather fuzzy. However, what is clear is the only response received so far was regarding Ivanpah. While it remains unknown at this time if additional responses will be forthcoming from the San Bernardino County Sheriff and/or associates, it is important to address at least one of the historical SEGS sites Mr. Kerr requests possible information for - that being the Solar Two SEGS in Daggett, California.

According to an article by the LA Times titled, "[Storage Tank At Solar Power Plant In Desert Explodes; Immediate Area Is Evacuated](#)", dated 2/27/99, a 900,000 gallon storage tank of Therminol exploded and sent flames and smoke billowing from the site for hours. The San Bernardino Sheriff's Department evacuated the area and firefighters had considerable difficulty containing the blaze. The cause of the explosion was reported as unknown.

Solar Two was a collaborative project between eleven U.S. industry and utility partners and the DOE. One of the primary partners was The Bechtel Group, Inc., who was responsible for the design and construction of the new salt system as well as developing the plant layout, specifications for the receiver, storage tanks, steam generation system, master control system, the Testing & Evaluation Program beginning in 1995 and then its operation and maintenance from mid-February 1998 until it closed in April 1999. (E. Pacheco, H.E. Reilly, G.J. Kolb and C.E. Tyner, "[Summary of the Solar Two Test and Evaluation Program](#)", (2000). On November 24, 2009, Southern California Edison [demolished](#) the Daggett solar tower.

I have attempted to find sources that list the specific chemicals and hazardous materials stored at the Daggett Solar Two site but so far, no source has been found nor has the cause of the explosion at Solar Two been revealed.

Questions

1. What was the cause of the explosion at the Solar Two-Daggett site?
2. Is it possible that mirror surface radiance/beams were the cause of the explosion at Solar Two? If so, could this be repeated at the HHSEGS?
3. Was there any soil or site contamination at Solar Two due to the explosion and burning of volatile chemicals?

Recommendations

- The CEC should make it priority to discover the cause of the explosion in efforts to determine if the HHSEGS will have the same potential for explosions as the Solar Two site did.
- The CEC should also initiate an investigation to determine the chemicals and hazardous materials stored onsite at Solar Two in order to cross-reference them with the chemicals and materials to be stored onsite at the HHSEGS. This may help prevent additional threats from potentially unsafe chemical storage locations in the event of explosions or fires as this was a significant concern at the Daggett site explosion because the fires proximity to storage areas for toxic substances.
- Require Bright Source or any future owner/operator to carry insurance against environmental risks including environmental contamination as a condition of the permit over the life of the project.

2. HAZARDOUS WASTE: SELF-REGULATING

Background

In Section 5.14, Waste Management, Table 5.14-2, Potential Wastes Generated During Construction Phase at the HHSEGS Facility, pp. 8/9, the applicant lists a wide variety of hazardous and non-hazardous substances that will be located or generated onsite during the construction phase of the project. Below is a portion of these potential wastes:

Table 5.14-2, Potential Wastes Generated During Construction Phase at the HHSEGS Facility

Passivating and chemical cleaning fluid waste	Pipe cleaning and flushing	Varies	200,000 to 400,000 gallons (life of project construction)	Hazardous or non-hazardous liquid	Sample and characterize—if clean (meets regulatory standards), discharge to the surrounding area; or use for dust control; otherwise, manage appropriately offsite
Hydrotest water	Testing equipment and piping integrity	Water	400,000 gallons (life of project construction)	Hazardous or non-hazardous liquid	Sample and characterize—if clean, (meets regulatory standards) discharge to the surrounding area or use for dust control; otherwise, manage appropriately offsite (see Section 5.15)

Comments

In both of the referenced waste materials above, the applicant fails to specify whether these wastes will be hazardous or non-hazardous. The applicants' current plan allows the owner/operator to act as the sole regulator for determining the hazardous or non-hazardous values of these substances.

- If the applicant determines they are non-hazardous, the applicant plans to dispose of these material onsite into the surrounding environment.
- If the applicant determines they are hazardous, they will have to pay for their removal as well as a hazardous materials handling fee.

In other words, the applicants' current plan has an inherently built in conflict of interest that prohibits objective testing, handling and disposal.

The first line of defense against this inherent conflict of interest is Inyo County regulators who will be responsible for hazardous materials oversight – but they are located over 200 miles away. Also, based on the lack of involvement or response the applicant has continually demonstrated towards the Inyo County Planning Department, (See *Letters to CEC, Inyo County “[Outstanding County Land Use and Planning Issues](#)”, 2/23/12, and “[HHSEGS Reclamation Plan](#)”, 2/27/12*), there is little confidence that the applicant will do an about face and begin to work closely with Inyo County regarding the regulation of hazardous substances.

As for other regulators who may be involved in hazardous materials oversight and disposal, they are located even farther away than Inyo County officials. Available statistics on the effectiveness of hazardous material regulators and departments are also abysmal and only getting worse.

The applicant does not own the land, so has no vested interest in its health and a well-known corporate industrial pollution strategy is to pay fines for violations (if they get caught) versus adhering to pollution control or hazardous substance disposal because in the long run, it's more "cost effective".

Questions

1. Why would the applicant or owner/operator pay to remove hazardous materials if they don't have too?
2. If the materials used in the hydrotest water and passivating/chemical cleaning fluid waste are only "mildly" hazardous, how would their onsite disposal into the soils be detected by regulators if it were thinly spread around the area for dust abatement?
3. If the hydrotest water and passivating/chemical cleaning fluid waste tested "hazardous", what would stop the applicant or owner/operator from diluting it until it dropped below regulatory standards and then spreading it all over the area for dust abatement?
4. Would the impacts of this "diluting" strategy not be apparent in onsite soils until the end of the project life?
5. What is the economic cost effectiveness between the applicant determining these substances are "non-hazardous" (even if it is) and then using it for onsite dust control and/or disposal versus determining it hazardous and have to pay to dispose of it offsite?
6. Would the fine for disposing hazardous wastewater onsite be more cost effective, especially at the end of the projects life, than having to pay for its offsite disposal during its construction and operations?

Recommendations

- As a condition of the permit, prohibit the owner/operator from onsite disposal of any hydrotest water, passivating/chemical cleaning fluid, or any other substance that is mixed with raw water and generated by the construction or operation of the HHSEGS onsite.
- As a condition of the permit, require all water used during the construction or operational phase of the HHSEGS that is mixed with any other substance to be disposed of offsite in a wastewater treatment facility.
- In the public interest, assess the feasibility of recycling the wastewater at a wastewater treatment plant and transport it back for reuse at the HHSEGS over the life of the project.
- As a condition of the permit, charge the owner/operators of the HHSEGS site for their water use and wastewater to discourage waste and to prevent possible abuse of water consumption.

- As a condition of the permit, set limits on the amount of water that can be removed offsite based on operational requirements and develop monitoring standards that insure offsite water removal stays within this limit over the life of the project.
- As a condition of the permit, incorporate legal obligations to the state of Nevada that insure the protection and potential compensation if the HHSEGS significantly impacts the Pahrump aquifer.
- As a condition of the permit, require pre-construction and operational bi-annual soil sampling of the HHSEGS project site to monitor soils to prevent inappropriate discharges and cumulative impacts over the life of the project.

3. HAZARDOUS MATERIALS/COMMUNITY RISKS

Background

The following information is found in Section 5.5 Hazardous Materials Handling.

“There are no local ordinances regulating hazardous materials management.”(pp. 4)

“...the HHSEGS facility will store greater than 10,000 gallons of petroleum products onsite, and the facility will be required to prepare an SPCC plan.” (pp. 7)

“Several agencies regulate hazardous materials, and they will be involved in regulating the hazardous materials stored and used at HHSEGS. At the federal level, the EPA will be involved; at the state level, the California Environmental Protection Agency will be involved. However, local agencies primarily enforce hazardous materials laws.” (pp. 17)

Comments

I believe another primary reason why the applicant chose this site for the proposed HHSEGS is due to fact that there are currently no local ordinances regulating hazardous materials plus the added advantage of the nearest official is located in Inyo County almost 200 miles way.

With respect to the California Environmental Protection Agency’s ability to prevent environmental contamination and regulate hazardous substances, it has what can only be described as an abysmal track record. Just within the narrow band of researching the EPA’s Superfund Sites, California was by far and away the leader in environmental contamination for its region. Of the 153 Superfund sites listed on the EPA’s website for [Region 9](#), which include Arizona, California, Nevada, Hawaii, the Pacific Islands and Tribal Nations, California was responsible for 110 of them or 72% - almost three times the amount of all the other areas combined. (See Attachment I)

Some of California's Superfund sites are so vast, the size of the areas contamination could not even be quantified. In some of the areas where the size of the contamination *could be* quantified, it would have such titles as "San Fernando and San Gabriel Valley – All Areas" or "Modesto Groundwater Contamination" for the entire the city of Modesto, the "Newmark Groundwater Contamination" in San Bernardino or groundwater contamination in Santa Clara that may affect 1.4 million people

In almost all instances regarding California's Superfund sites, groundwater contamination was cited as being a primary concern and it's only getting worse. In the NRDC article "[California's Contaminated Groundwater](#): Is The State Minding The Store?" published almost ten years ago, more than one third of the areal extent of groundwater assessed in California was so polluted that it could not fully support at least one of its intended uses, and at least 40 percent was either impaired by pollution or threatened with impairment.

A decade later, a recently released [report](#) from the EPA in October 2011, found toxicity levels in California waters increased by 170 percent from 2006 to 2010.



Unlike surface water pollution, underground water contamination may be harder to detect.



An ounce of prevention is worth a pound of cure.

California's Environmental Protection Agency's less than stellar performance incites little confidence in their ability to prevent environmental contamination, regulate hazardous wastes or protect local residents from industrial poisoning and groundwater contamination that may result from the construction and operation of the HHSEGS.

Along side of the CEPA's involvement with regulating hazardous substances, there is also the California Department of Toxic Substances Control (DTCS). In 1999, [a survey](#) was compiled by Public Employees For Environmental Responsibility (PEER) of the DTSC in order help gauge employees views on its effectiveness.

Of the responses, 60% disagreed or strongly disagreed that the DTSC had adequate funding to fulfill its mission of environmental protection, 45% did not believe it was effective, 71% felt their resources were not effectively utilized, 61% felt executives placed self-protection over environmental protection, 50% did not believe that the best scientific and technical data was used in permitting, enforcement, technology certification and site mitigation decisions, 68% reported managers overruled scientific/technical recommendations for political reasons, 48% did not feel management was committed to strong enforcement of environmental laws and regulations in the field overall, 52% lacked confidence in DTSC leadership, 63% reported being directed to ignore an environmental rule or regulation by their supervisors, up to 63% feared job-retaliation for reporting problems or discrepancies, and between 36-40% of the employees knew of instances where a staffer has been re-assigned for doing their job “too well” on a controversial project.

I suspect a California DTSC employee survey today would have even higher percentages of overall dissatisfaction on all counts.

As for the EPA itself, since its inception it has always been subjected to political and economic pressures from industry, which has resulted in weakening its effectiveness. However, over the last decade there has been accelerated disparity between the wealthy industrial giants (sometimes known as “job creators”) ability to excessively influence and/or corrupt the political and decision-making processes and environmental justice.

In today’s current political and economic climate, the EPA has become a high level target for total elimination by some members of Congress who cite excessive environmental regulations and reviews are costing America jobs. While the EPA is now being openly attacked in efforts to dismantle it, it has already been subjected to relentless pressure internally as well.

In 2010, PEER completed a [survey](#) of the EPA Criminal Investigation Division’s agents, who reported even higher levels of discouragement regarding their ability to effectively enforce or prosecute critical environmental concerns.

Of the responses, 79% did not believe they had adequate resources to perform their mission, 77% did not believe the EPA’s criminal enforcement program is well managed, 64% did not believe management decisions were motivated primarily to improve environmental enforcement, 58% felt the EPA criminal program was weaker today than during the Bush Administration, 63% believed the CID failed to foster management practices necessary for successful criminal investigations, 68% believed hiring and promotions were not based on merit, 77% reported employee moral was not good, 71% feared job retaliation for reporting concerns to upper management, 75% felt senior management failed to listen to field agents, 62% reported they had personally been directed to not pursue important criminal cases for political reasons, and 52% believed catching environmental criminals is no longer a focus for of the CID,

During the same year this survey of the EPA Criminal Investigation Division agents was completed, PEER [reported](#) shortly afterwards that a high number of special agents had transferred out of the CID in 2010.

Questions

1. How is the issue of local agencies, i.e., Inyo County being the primary enforcer of hazardous materials laws, going to be reconciled with the fact that there are no local ordinances governing hazardous materials at the project site?
2. Will the SPPC plan be developed after the opportunity for public involvement and review is closed?
3. Will there be any public notifications, disclosure or discussions by Inyo County regarding the plans to handle hazardous materials at the site?
4. How many Inyo County officials are currently capable of monitoring hazardous materials handling at the HHSEGS site and will any more be needed; during the construction phase, operational phase and/or over the life of the project?
5. Are there any foreseeable problems with enforcement officials from any agency being located, at minimum, almost 200 miles away?
6. What is the projected annual cost to Inyo County officials to effectively monitor hazardous materials handling, insure compliance and monitoring potential environmental contamination?
7. If Inyo County is receiving large sums of tax revenue from the HHSEGS project site but they are also the primary source of enforcement for hazardous materials handling, doesn't this pose a conflict of interest?
8. Statistically, California's Environmental Protection Agency has failed to prevent significant groundwater contamination throughout the state. What has changed today and how does the CEPA intend to protect local residents water supply given the sum of substances that will be necessary for the HHSEGS's construction and operation over the life of the project?
9. Will the California Department of Toxic Substances play any role in overseeing hazardous materials handling at the HHSEGS site?
10. What specific role(s) will the EPA be responsible for regarding hazardous materials and environmental monitoring at the HHSEGS site and how often will that occur?

Recommendations

- Since the handling and release of hazardous materials can significantly affect local residents and cause severe adverse environmental impacts, ensure public notification and disclosure of hazardous materials handling plans drafted and approved by Inyo County or the appropriate agency.
- During the application process, incorporate parameters of each agency's duties and responsibilities specific to the HHSEGS site regarding the handling of hazardous materials and other possible environmental contaminants. This should include, but is not limited to, frequency and method of soil and water monitoring, number of annual onsite inspections and for what purposes, and projected dates of publication as to when the public will be able to review the results from these inspection and monitoring programs relative to their environment.
- Compile a comprehensive list viewable in a single location of all the management plans referenced throughout the applicants' documents required for the construction and operation of the HHSEGS but are currently being excluded from the review process. This would help determine the extent and scope of additional planning requirements that will not be subject to disclosure, data adequacy and cumulative impact analysis, mitigation measures or public review including hazardous substances.

HAZARDOUS MATERIALS

ATTACHMENT I

EPA Superfund Sites: Region 9

Arizona, California, Hawaii, Nevada, Pacific Islands and Tribal Nations

Currently, the [EPA](#) lists 153 such known sites in CA, AZ, NV, HW, Pacific Islands and Tribal Nations. Of these, California is responsible for 110, equating to 72% of the Superfund sites for Region 9.

EPA Superfund Sites: California

RESPONSIBLE PARTY	CITY	ACRES
1. Advanced Micro Devices	Sunnyvale, CA	6
2. Aerojet General Corp.	Sacramento, CA	5,900
3. Alameda Naval Air Station	City of Alameda, CA	2,634
4. Alark Hard Chrome	Riverside, CA	
5. AMCO Chemical	Oakland, CA	0.9
6. Applied Materials	Santa Clara, CA	
7. Barstow Marine Corps Logistics Base	Barstow, CA	5,687
8. Beckman Instruments (Porterville Plant)	Porterville, CA	500
9. Blue Ledge Mine	Rogue River Nf, CA,	
10. Brown & Bryant, Inc. (Arvin Plant)	Arvin, CA	5
11. BF Goodrich	Rialto, CA	160
12. Camp Pendleton Marine Corps Base	San Diego, CA	125,000
13. Casmalia Resources	Casmalia, CA	252
14. Castle Air Force Base	Atwater, CA	2,777
15. Celtor Chemical Works	Hoopa, CA	3.2
16. Coalinga Asbestos Mine	Outside Coalinga, CA	120
17. Coast Wood Preserving	Outside Ukiah, CA	8
18. Concord Naval Weapons Station	Concord, CA	12,800
19. Cooper Drum Co.	South Gate, CA	3.8
20. Crazy Horse Sanitary Landfill	Salinas, CA	125
21. CTS Printex Inc.	Mountain View, CA	
22. Del Amo Facility	Los Angeles, CA	280
23. Del Norte Pesticide Storage	Outside Crescent City, CA	
24. Edwards Air Force Base	CA	301,000
25. El Toro Marine Corps Air Station	Irvine, CA	4,700
26. Fairchild Semiconductor Corp.	Mountain View, CA	56
27. Fairchild Semiconductor Corp.	San Jose, CA	22
28. Firestone Tire & Rubber Co.	Outside Salinas	256
29. Fort Ord	Outside Monterey, CA	27,827
30. Fresno Municipal Sanitary Landfill	Fresno, CA	145
31. Frontier Fertilizer	Davis, CA	8
32. George Air Force Base	Victorville, CA	5,347
33. Grey Eagle Mine	Happy Camp, CA	20
34. GTE	Mountain View, CA	
35. Halaco	Oxnard, CA	37

EPA Superfund Sites: California

RESPONSIBLE PARTY	CITY	ACRES
36. Hewlett-Packard	Palo Alto, CA	10
37. Hexcel Corp.	Livermore, CA	22
38. Hunters Point Naval Shipyard	San Francisco, CA	936
39. Industrial Waste Processing	Pinedale, CA	0.5
40. Intel Corp.	Mountain View, CA	2
41. Intel Corp.	Santa Clara, CA	4
42. Intel Magnetics	Santa Clara, CA	1
43. Intersil, Inc. – Siemens Components	Cupertino, CA	15
44. Iron Mountain Mine	Outside Redding, CA	4,400
45. Jasco Chemical Corp.	Mountain View, CA	2
46. Jervis B. Webb Co.	South Gate, CA	
47. Jet Propulsion Laboratory (NASA)	Pasadena, CA	176
48. Jibboom Junkyard	Sacramento, CA	9
49. J.H. Baxter & Co.	Weed, CA	205
50. Klau Buena Vista Mine	Paso Robles, CA	
51. Koppers Co., Inc.	Oroville, CA	205
52. Lava Cap Mine	Outside Nevada City, CA	33
53. Lawrence Livermore National Laboratory (Site 300) (USDOE),	Outside Livermore, CA	11 sq. miles
54. Lawrence Livermore National Laboratory Main Site (USDOE)	Livermore, CA	1 sq. mile
55. Lehr Old Campus Landfill (USDOE)	Davis, CA	
56. Leviathan Mine	Outside Markleeville, CA	9-Mile Stretch
57. Liquid Gold Oil Corp.	Richmond, CA	29
58. Lorentz Barrel & Drum Co.	San Jose, CA	10
59. Louisiana-Pacific Corp.	South of Oroville, CA	215
60. March Air Force Base	Outside Riverside, CA	7,123
61. Mather Air Force Base	Outside Sacramento, CA	5,845
62. McClellan Air Force Base	Outside Sacramento, CA	3,452
63. McColl	Fullerton, CA	22
64. McCormick & Baxter Creosoting Co.	Stockton, CA	29
65. MGM Brakes	Cloverdale, CA	5
66. Modesto Ground Water Contamination	Modesto, CA	
67. Monolithic Memories	Sunnyvale, CA	20
68. Montrose Chemical Corp.	Los Angeles, CA	13
69. National Semiconductor Corp.	Santa Clara, CA	50
70. National Air Station Moffett Field	Moffett Field, CA	1,500
71. New Idria Mercury Mine	Idria, CA	8,000

EPA Superfund Sites: California

RESPONSIBLE PARTY	CITY	ACRES
72. Newmark Groundwater Contamination	San Bernardino, CA	8 sq. miles
73. Norton Air Force Base	San Bernardino, CA	2,165
74. Omega Chemical Corp.	Whittier, CA	
75. Operating Industries, Inc. Landfill	Monterey Park, CA	190
76. Pacific Coast Pipeline	Fillmore, CA	
77. Palos Verdes Shelf	Palos Verdes Peninsula, CA	
78. Pemaco	Maywood, CA	
79. Purity Oil Sales, Inc.	Outside Fresno, CA	7
80. Ralph Gray Trucking Co.	Westminster, CA	23
81. Raytheon Corp.	Mountain View, CA	30
82. Riverbank Army Ammunition Plant	Outside Modesto, CA	173
83. Sacramento Army Depot	Sacramento, CA	485
84. San Fernando Valley	CA	All Areas
85. San Gabriel Valley	CA	All Areas
86. Santa Susana Field Laboratory	Simi Valley, CA	2,850
87. Seam Master Industries	South Gate, CA	
88. Selma Treating Co.	Outside Selma, CA	18
89. Sharpe Army Depot	Outside Lathrop, CA	724
90. Sola Optical Usa, Inc.	Petaluma, CA	35
91. South Bay Asbestos Area	Alviso, CA	550
92. Southern California Edison, Co. (Visalia Poleyard)	Visalia, CA	20
93. Spectra-Physics, Inc.	Mountain View, CA	11.5
94. Stoker Co.	Imperial, CA	
95. Stringfellow	Outside Glen Avon, CA	17
96. Sulphur Bank Mercury Mine	Clear Lake, CA	150
97. Synertek, Inc.	Santa Clara, CA	3.5
98. Teledyne Semiconductor	Mountain View, CA	1
99. Tracy Defense Depot	Outside Tracy, CA	448
100. Travis Air Force Base	Fairfield, CA	5,025
101. TRW Microwave, Inc.	Sunnyvale, CA	
102. T.H. Agriculture & Nutrition Company	Fresno, CA	5
103. United Heckathorn Co.	Richmond, CA	20
104. Valley Wood Preserving, Inc.	Outside Turlock, CA	
105. Verdese Carter Park	Oakland, CA	3
106. Waste Disposal, Inc.	Santa Fe Springs, CA	38
107. Watkins-Johnson Company	Scotts Valley, CA	3
108. Western Pacific Railroad Co.	Oroville, CA	90
109. Westinghouse Electric Corp.	Sunnyvale, CA	75
110. Yosemite Creek Sediment	San Francisco, CA	

HELIOSTATS/MIRRORS

"The ability of an individual to escape a health-threatening physical environment is usually related to affluence."

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.

HELIOSTATS/MIRRORS

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. GLOWING IN THE DARK: 170,000 MIRRORS STRONG

Background

In Section 5.13 Visual Resources, pp. 24, the applicant describes the heliostat fields visual impacts at night.

“At nighttime, both the heliostat assembly structure and the structure where the heliostat components are stored will have interior illumination. Because these structures are likely to consist of metal frames covered with a fabric or plastic material, the interior lighting will make the structures appear to glow at night.” (Emphasis added.)

Comments

To date, data requests and visual resource discussions have centered around daytime lighting impacts; there has yet to be a discussion surrounding the affect on nighttime visual resources due to 170,000 mirrors glowing in the dark.

Questions

1. Can a computer generated image be developed to show both a single heliostat as well as the entire field of them during nighttime hours?
2. Does the fabric or plastic material on the metal frames include the pylons?
3. If plastic is used, what kind would be necessary to withstand expose to sun/heat over the life of the project? Conversely, how often would the material need to be replaced and what are the impacts to the soil and vegetative resources during replacement operations?
4. Would just the covering have to be replaced over the life of the project or would it involve the frames as well? If so, how often and what are the impacts of access and replacement?

Recommendations

- Provide more detailed discussions and analysis on nighttime visual resource impacts due to “glowing” heliostats.
- Explore and discuss possible alternatives to interior illumination of heliostat assembly structures and components.

- Explore and discuss possible alternatives of metal frame coverings that would prevent “glow in the dark” impacts.
- Provide photos of projected impacts of interior illumination per heliostat as well as the cumulative impact of the entire field to nighttime visual observations.

2. HELIOSTAT POSITIONING PLAN

Background

In the 2011-11-17 Data Response Set, 1A, pp. 24, the applicant states:

“The presumption of potential injury in the Background to DR 28 is incorrect. Under normal heliostat operation, or if a heliostat were to malfunction, a heliostat will not project its beam beyond the plant boundary and will not present an actinic hazard, including retinal damage, to observers on the ground or to plant personnel.” (Emphasis added.)

In the 2011-11-17 Data Response Set, 1A, pp. 26, the applicant states:

“To ensure that the heliostats will be operated in a way that avoids the possibility for inadvertent direction of unacceptable levels of light toward ground level locations surrounding the project site, Applicant could prepare a Heliostat Positioning Plan (HHP) similar to that implemented for the Ivanpah Solar Electric Generating System. The HHP would identify heliostat movements and positions, including those that would occur during reasonably possible malfunctions, which could lead to potential exposure of observers at locations outside the site. The HHP would include a description of how the programmed heliostat operation would avoid potential exposure of viewers outside the site to unacceptable levels of reflected light. The HHP would also include a monitoring plan that would obtain field measurements in response to legitimate complaints, verify that the plan would avoid creation of hazards related to reflected light, and provide requirements and procedures to document, investigate, and resolve legitimate complaints.”

Comments

There seems to be some discrepancies in the applicant’s responses regarding potential light exposure to observers at ground level.

Due to the HHSEGS’s proximity to roadways, potential light exposure may pose a severe safety hazard to motorists.

With respect to the applicants’ reference to the creation of a Heliostat Positioning Plan (HHP), I don’t understand why this information would not have been included in the original AFC files submitted on August 5, 2011 or why it has still not been made available for review.

Questions

1. What *are* the levels and potential exposure to viewers outside the plants boundaries?

Recommendations

- Resolve discrepancies as to whether potential exposure will or will not occur outside the plant boundaries.
- Prepare and submit a Heliostat Positioning Plan for the HHSEGS for review and opportunities to submit additional data requests regarding this information.

3. WHERE WILL THE RADIANCE GO?

Background

In the 2011-11-17 Data Response Set, 1A, pp. 25, the applicant states:

“For normal operations, the heliostats will orient themselves according to their position in the field, day of the year, and time of day in order to reflect the sun rays either on the receiver (“tracking” orientation) or an area nearby (far enough from the tower and receiver to free them from radiation but close enough to allow entering quickly the receiver – this is called the “standby” orientation.)” (Emphasis added.)

Comments

There is no further description or discussions on what constitutes an “area nearby” that will receive reflections not oriented towards the receivers.

Questions

1. What will be the locations of “nearby areas”?
2. Will the “nearby areas” constantly be in flux due to time of day?
3. What impact, if any, will these standby reflection points have on visual observers surrounding the site?
4. Will there be any possibility that reflections from mirrors in standby (not directed at the receivers) can reflect on other mirror surface positions?
5. Due to changing sunlight location and orientation throughout the day/seasons, how many mirrors will actually be directed at the receivers at any given time?
6. During peak solarly times, how many mirrors will be positioned at the receiver for peak production and how many will not be utilized to prevent overload?
7. Approximately what percentage of mirrors will be not utilized due to poor solarly positioning?

Recommendations

- Prepare and submit a Heliostat Positioning Plan for the HHSEGS for review and opportunities to submit additional data requests regarding this information.

4. REFLECTIVE MIRROR TEMPERATURES

Background

In the Supplemental Data Response 1A (TN63259) dated 12/30/11, pp. 8, the applicant responds to Data Requests regarding thermal NO_x formation. The applicant states:

“Thermal NO_x is formed by the high temperature reaction of nitrogen with oxygen. As discussed on page 3 the attached article_ (Attachment AQ2-1),³ thermal NO_x formation becomes significant above about 1300°C (2370°F). The Applicant expects that surface temperatures of the SRSG panels will reach approximately 700°C (about 1300°F), well below the range where thermal NO_x will form. Therefore, thermal NO_x is not expected to form at the surface of the solar receivers.” (Emphasis added.)

On February 25, 2012, an article regarding Bright Sources Ivanpah Plant was published in the Seattle Times titled, [“Mojave Solar-Powered Project Sacrifices The Desert For The Earth.”](#) In it, the article references daytime mirror surface temperatures and quotes Larry La Pre, BLM’s wildlife biologist for much of the Mojave, who states:

“The insects are unknown, because you could have massive losses of pollinators because you have these insects getting burned by the mirrors.”

Comments

While the applicant has disclosed the predicted temperatures on the solar receivers, no discussion or data has yet been provided regarding reflective temperatures produced by individual mirror surfaces at varying elevations or their potential impacts.

Questions

1. What is the projected reflective temperature of individual mirror surfaces in the following categories: At 100%, 75%, 50% and 25% solarility? Within each distance from the mirror surfaces at each solarility percentage: 1 ft., 2 ft., 3 ft., 6 ft, 10 ft., 15 ft., 25 ft., 50 ft., 100 ft., 200 ft., 500 ft.?
2. What is the projected collective temperature of mirror surface reflections per each designated heliostat zone based on the categories defined above?
3. What is the maximum temperature an insect of any species can withstand before damage and/or death occurs?

Recommendations

N/A

5. THE HEART: LACK OF ADEQUATE DATA

Background

In Section 2.0, Project Description, pp. 1, the applicant describes the “heart” of the Hidden Hills Solar Electric Generating Systems operations and performance.

“HHSEGS project design incorporates an important technology advancement, the 750-foottall solar power tower. One principle advantage of the HHSEGS solar power tower design is that it results in more efficient land use and greater power generation. The new, higher, 750-foot solar power tower allows the heliostat rows to be placed closer together, with the mirrors at a steeper angle. This substantially reduces mirror shading and allows more heliostats to be placed per acre. More megawatts can be generated per acre and the design is more efficient overall.”

Comments

This summary description of the “heart” of the HHSEGS used liberally throughout the applicants’ documents is also - unfortunately - the only information offered as to its actual operating parameters. In other words, the project design provides no data of any sort to support its unsubstantiated assertions.

Questions

1. What is the source and where is the data proving the credibility of applicant’s assertion that the “design incorporates an important technology advancement”? Where was this technology advancement developed, tested and verified?
2. By what degree does this technological advancement increase power production versus the “old design”?
3. How does the height of the 750-foot power tower correlate to the heliostat row placement and how does it compare to lower power towers?
4. What will be the placement distance between each heliostat with the new system? How does it compare to the old system?
5. If each mirror is placed at a different angle that reduces shading but more mirrors are placed as a result, how is mirror shading “reduced” if mirror density is increased?
6. What is the comparison value between the new “steeper angle” heliostats versus the “old angles” of heliostat placement in terms of:
 - a) power generation
 - b) shading
 - c) sunlight capture efficiency

- d) heliostat placement per acre efficiency
- e) megawatts generated per acre
- f) impacts to vegetative resources
- g) impacts to soil stability

7. What is the efficiency rate “overall” between the new technology versus the old in terms of percentages? What is the efficiency increase percentage rate specific to each component of the new technology?

8. Is there any decrease in power tower height possible that still yields the same advertised efficiency rate? By what percentage rate does efficiency decrease as tower height decreases?

Recommendations

- Since there is no viable information yet available about this component of the systems operating parameters, no recommendation or possible mitigation measures can be addressed. Failure to disclose, analyze, define, discuss or address these critical operational and performance issues should yield a lack of data adequacy decision from the CEC.

6. HELIOSTAT ZONES: NTZ’S

Background

In Section 5.1, Air Quality, pp. 42, the applicant describes general parameters for mirror cleaning activities in the Near Tower Zones.

“Each solar field is divided into three zones for the purpose of heliostat cleaning, depending upon the locations and density of heliostat placement. These zones determine what type of mirror washing machine can be used for the heliostats in the zone. The Near Tower Zone (NTZ) consists of the area closest to the tower. The layout in this zone allows a vehicle to drive between the heliostats so that each heliostat can be accessed directly. The NTZ mirror washing machines are small and maneuverable. Each solar plant will require four NTZ mirror washing machines.”

Comments

Currently, sufficient data is not yet available to appropriately evaluate impacts, identify issues or discuss possible mitigation needs or alternatives.

Questions

1. What is the specific layout, scope and affected acreage for each of the Near Tower Zones?
2. What is the density and placement of heliostats in the NTZ areas? How much space will be between each heliostat?

3. What are the differences, if any, between mirror angles, shading, mirrors per acre, megawatt production p/acre and efficiency ratings in the NTZ areas versus the other mirror washing zones?
4. What does “direct access” mirror washing entail? How does it differ and compare to mirror washing for other zones with respect to workers needed, number of mirrors washed per hour, required water use per mirror, etc.?
5. What are the vehicle drive zone dimensions in the NTZ areas?
6. What kind of impacts to soils and vegetation will there be due to directly accessing the NTZ heliostats? How much vegetation is projected to remain in the NTZ areas?
7. Will the NTZ areas be completely graded or will they maintain natural landscape characteristics?
8. How will the applicant control fugitive dust between each heliostat in the NTZ areas?
9. What kind of vehicle is a “NTZ washing machine” and what are its emissions impacts?

Recommendations

- Provide maps of the NTZ areas specific to each power tower. Include a snapshot of vehicle drive zones in the NTZ’s.
- Provide a photo of a NTZ washing machine.

7. HELIOSTAT ZONES: THE OTHER TWO

Background

In Section 5.1, Air Quality, pp. 42, the applicant describes general parameters for mirror cleaning activities in the areas outside the NTZ’s.

“Heliostats beyond the NTZ cannot be accessed directly and must be reached with a crane. The heliostats that are more than about 400 meters from the tower will be cleaned using tractor-towed trailers with telescoping arms that can reach the heliostats from the limited areas in which vehicles can drive. Each machine will drive a short distance, park and anchor, and then extend its crane arm to clean as many heliostats as can be reached from its location. Each solar plant will require a total of 17 tractor-pulled trailers for cleaning heliostats outside the NTZ.”

In Appendix 5.15A, Construction Drainage, Erosion and Sedimentation Control Plan/Stormwater Pollution Prevention Plan, pp. 36/37, the applicant provides a brief description of the areas and drive zones outside the NTZ's.

“Within the heliostat fields, 20-foot “drive zones” will be located concentrically around the power block to provide access to the heliostat mirrors for maintenance and cleaning (Figure 1). The drive zones will be located approximately 152 feet apart and will be grubbed to remove vegetation and smoothed. A 12-foot-wide dirt road on the inside perimeter of the project boundary fence will be used for site security and to monitor and maintain perimeter security and tortoise exclusion fencing.”

Comments

When discussing the requirements of the NTZ areas, the applicant distinguishes three specific zones required for mirror washing, yet only two kinds of zones are actually discussed.

Questions

1. What is the layout, scope and affected acreage of each of the two zones outside the NTZ's specific to each power tower?
2. Will the other two zones outside the NTZ's use 20-foot drive zones spaced 152 feet apart? If not, what are the distinguishing factors between the other two mirror washing zones?
3. What are the differences, if any, between mirror angles, shading, mirrors density p/acre, megawatt production p/acre and efficiency ratings between the each mirror washing zone outside the NTZ's?
4. What differences, if any, will there be to soil and vegetation impacts between the other two mirror washing zones?
5. How will the applicant control fugitive dust during normal operations in each mirror washing zone outside the NTZ's?
6. What is the projected number of heliostats that can be cleaned each time the crane anchors for each zone?

Recommendations

- Provide maps of the two other mirror washing zones specific to each power tower.
- Provide total amount of affected acreage and number of drive zones required for each mirror washing zone specific to each power tower.

8. HELIOSTAT COMMUNICATIONS SYSTEM

Background

In Section 2.0, Project Description, pp. 7, the applicant provides a summary of the solar fields and heliostat requirements.

“Each of the heliostat assemblies is composed of two mirrors, each approximately 12 feet high by 8.5 feet wide with a total reflecting surface of 204.7 square feet. Each heliostat assembly is mounted on a single pylon, along with a computer-programmed aiming control system that directs the motion of the heliostat to track the movement of the sun. Communication between the heliostats and the operations center will be done via surface mounted anchored cable or wireless remote system. The solar field for each solar plant will consist of approximately 85,000 heliostats.” (Emphasis added.)

Comments

The applicant has yet to commit to the method of communication system that will be used between the heliostats and the operations center. There is no discussion, analysis or data yet available regarding the differences, impacts and potential drawbacks of each system.

It seems to me there would be significant differences between the impacts of these two systems. For example, there would most likely be significantly more soil and vegetation disturbances if the surface mounted cables were utilized versus the remote wireless system. But then again, the cable system may be more reliable than wireless in terms of communications.

Additionally, according to [“The Porto Alegre Resolution”](#), a resolution signed by concerned scientists and medical doctors, because of concerns regarding possible human and environmental health risks resulting from wireless communications systems, the resolution strongly advocates *“siting or signal transmission in residences, schools, day-care centers, senior centers, hospitals or any other buildings where people spend considerable time.”*

Questions

1. How many miles of surface mounted cables would be required per solar field?
2. What materials would the surface mounted cables be comprised of?
3. How would the applicant apply “surface mounted cables” through drive zones surrounding the heliostat fields or the direct access NTZ areas?
4. Would some of the cables be required to be placed underground? If so, to what extent?
5. What would be the projected impacts to soil and vegetative resources between these two systems?
6. What are the projected reliability differences, if any, between these two communications systems?

7. Would a remote wireless system cause any disturbances to local television, radio or cell phone reception?

8. Are there any potential environmental degradation, contamination or public health risks associated between the two systems? For example, could surface mounted cables cause soil contamination due to material degradation and/or seepage as a result of the high solar intensity of the area or perhaps native soil composition?

9. Would the wireless systems signal pose any public health risks? Are there any studies or data indicating potential effects to human health?

Recommendations

- Explore and analyze in detail the requirements, impacts, strengths and weaknesses of each of these two communication systems.
- Prohibit the use of wireless communication systems that may adversely impact human or environmental health.

9. MIRROR WASHING: LIMITED DATA

Background

In the California Energy Commission Staff Assessment, DEIS, Section C-D, [Environmental Assessment](#) of Solar Two, dated February 2010, pp. 17, the following description of projected mirror washing requirements and activities were provided.

“Mirror washing would be required approximately once every month, requiring 14 gallons of water per dish with an average washing rate of 20 minutes per washed dish pair, or 10 minutes per dish, since each wash vehicle is able to wash two SunCatchers simultaneously.....In addition to monthly washing, seasonal scrubbing is anticipated. Seasonal scrubbing would occur prior to peak electricity demand season, which is June through September.”

Comments

The applicant has yet to provide a similar description or details regarding projected mirror washing activities necessary for operations of the HHSEGS.

On June 9, 2011, Bright Source Energy’s Amendment No. 2 filed with the Security Exchange Commission stated they projected the need to wash mirror every two weeks to prevent performance degradation. In the Environmental Assessment cited above, Bright Source projects mirror washing would be required once a month.

Questions

1. Why is there a discrepancy between these two documents regarding the projected necessity for mirror washing to insure maximum performance? What changed between February 2010 (every month) and June 2011 (every two weeks)?
2. How often will mirror washing be required per mirror during the normal operating parameters of the HHSEGS to maintain maximum efficiency and performance?
3. What are the projected water requirements per mirror per mirror washing zone?
4. How many mirrors will be washed at a time and what is the projected average time frame per worker for each mirror washed per zone?
5. What are the specific projected time frames of Seasonal scrubbing? How long is Seasonal scrubbing projected to occur?
6. What impacts, if any, will Seasonal scrubbing make to mirror availability and output?
7. How many mirrors are projected to be completed daily during Seasonal scrubbing?
8. What are the differences in water usage between maintenance cleaning and Seasonal scrubbing?
9. Are there any chemicals that will be utilized during normal mirror cleaning activities and/or Seasonal scrubbing operations? If so, what are they and their potential environmental impacts?

Recommendations

- The incorporation of specific details, calculations, discussions, and impact analysis relative to all phases of heliostat/mirror functions are critical in discerning the credibility of the HHSEGS's ability to operate as advertised.
- Failure to disclose, analyze, define, discuss or address these critical operational and performance issues should yield a lack of data adequacy decision from the CEC.

10. MIRROR DEGRADATION: IMPACTS TO PERFORMANCE

Background

The following quote was taken from Bright Source Energy's Amendment No. 2 filed on June 9, 2011, with the Security Exchange Commission.

“Our largely unproven mirror cleaning equipment may perform below our expectations. The primary maintenance activity for solar thermal projects using our systems will be the routine and continuous washing of reflective mirror surfaces. We anticipate each mirror may need to be cleaned every two weeks to prevent a buildup of dust which would significantly degrade the system performance. Mirrors will be washed at night by a dedicated crew using specialized mobile equipment. A truck is being designed that will bring purified water simultaneously to a number of mirrors. We are still designing and testing the specialized equipment to be used in this process. If the mirror washing equipment and process are not effective, actual operating costs may be substantially higher than forecasted or total electrical production may fall short of estimates.”
(Emphasis added.)

Comments

Bright Source has already recently undergone extensive and detailed analysis regarding the critical design component of mirrors during the approval process of the Ivanpah SEGS.

Two months before filing an application with the CEC for the Hidden Hills SEGS, Bright Source is telling investors that despite already spending significant resources on the approval of the Ivanpah plant, they are still designing the system and almost all the factors involved with projecting electrical output, costs and performance are still very much up in the air. The specific term used is “substantially” higher in costs and short on performance if the new and largely untested equipment fails to perform in the best-case scenario.

While the applicant discloses potential project design shortcomings with potential investors, in the AFC files the applicant fails to disclose potential system degradation factors for analysis.

Additionally, so far no discussions have yet to occur regarding poor performance potentials related to heliostat/mirror functions – despite the fact that they are deemed critical to the SEGS’s classification as a renewable energy source.

There is no “range” of performance evaluations for individual or collective mirror output, no disclosure or analysis of potential and/or significant variations in mirror efficiency rates, no discussions, estimates, analysis or projections of alternative mirror washing techniques if the largely untested equipment fails, no evaluations of projected performance of heliostats/mirrors on an annual or seasonal basis, no description or analysis of other factors that may also significantly degrade system performance, no best and worse case scenarios and no information and/or measurements are disclosed regarding potential impacts of system degradation and/or efficiency loss over the life of the project.

In light of the fact that the applicant intends to use natural gas to “supplement” solar power, not disclosing, analyzing or discussing any specifics or details relative to heliostat/mirror efficiency, output, or performance casts serious doubts on the credibility that this will actually be a SEGS.

Questions

1. What is the specific and technical projection of, “significantly degrade system performance”?
2. Why is there no detailed analysis of system degradation, efficiency rates and performance calculations for the heliostat/mirror components of the HHSEGS?
3. If dust buildup alone can potentially result in significant degradation to system performance, how poorly will the system operate when all the other critical factors affecting heliostat/mirror function are analyzed together?
4. What are the degradation factors relative to efficiency and production output of the mirrors? For example, if 10% of the mirrors have degraded performance due to (dust buildup, surface pitting due to wind erosion, reduced sunlight direction, etc.), what is the projected output of the remaining mirrors still operating at maximum efficiency? What about at 20% degradation, 40% or 60%?
5. How many mirrors are expected to operate at maximum efficiency per day and for how many hours?
6. Do the projected maximum/minimum mirror efficiency rates change per season? If so, what are the percentage rates?
7. What is the expected lifespan of each mirror for operating at maximum efficiency and what is the projected timeline for degradation to mirrors due to efficiency loss (i.e., 10% loss over first year/five years)?
8. What is the maximum amount of mirror degradation that will be allowed during operations? Before replacement is required?
9. What is the projected replacement requirements of heliostats and/or mirrors on an annual basis and over the life of the project? For example, will all mirrors need to be replaced every five years, every ten years and what impact will replacement have on operations and output?
10. What is the estimated cost of mirror replacement relative to their degradation factors?
11. What alternatives will the applicant have available if the mirror washing techniques, specialized equipment and/or the newly designed truck fail and what are those alternatives impacts?
12. Has the applicant completed design and testing of the new trucks and specialized mirror cleaning equipment? If so, is there data now available regarding their performance capabilities?
13. How will output of mirror performance be monitored to insure compliance that the HHSEGS is achieving solar output conformance goals?

14. How will regulators be able to distinguish the difference between energy production via solar output versus natural gas output?

Recommendations

- The incorporation of specific details, calculations, discussions, and impact analysis relative to all phases of heliostat/mirror functions are critical in discerning the credibility of the HHSEGS's ability to operate as advertised.

11. MIRROR PERFORMANCE: SUMMER RAIN

Background

In Section 5.15, Water Resource Management, pp. 6, the applicant states:

"Most of the precipitation in the region falls during January through March and July through September." (Emphasis added.)

Comments

In addition to the largely unproven mirror cleaning equipment cited as being a *significant* hinge pin for system performance and a truck that was still being designed at the time, there are also several other design elements that may also be critical in evaluating system performance that are not addressed or discussed in the applicant's AFC files either.

One such example could include desert rain, often merely a brief sprinkling of water drops from clouds hurrying by that leave their mark on automobile windshields. It's easy to clean a car windshield – it's not so easy to clean 170,000 mirrors overnight. One of the prime times for these kinds of brief showers also happens to occur in August but as the applicant points out, summer rain is common between the months of July through September - key months of energy production for the HHSEGS

Questions

1. What is the estimated average number of days of "summer rain", which includes even a small sprinkling, projected to occur during the months of July, August and September?
2. Once mirrors have been subjected to rain on their surfaces, what's the estimated time frame it will take mirror washing crews to clean all the water residue from the mirrors surface?
3. Is it possible that mirror performance will stay continuously degraded due to the combination of summer rain degrading mirror surface performance and mirror cleaning crews not being able to clean all surfaces before another rain degrades the surfaces again?

Recommendations

- The incorporation of specific details, calculations, discussions, and impact analysis relative to all phases of heliostat/mirror functions are critical in discerning the credibility of the HHSEGS's ability to operate as advertised.

12. MIRROR WASHING METHODS

Background

In Section 5.1, Air Quality, pp. 42, the applicant describes the mirror washing process.

“Mirror washing will employ a high-pressure system using demineralized water, by means of vehicle-towed trailers that contain a water tank, positive displacement water pumps that deliver water at high-pressure, and spray nozzles operated by the cleaning crew.”

In Section 5.15, Water Resource Management, pp. 15, the applicant states:

“Heliostat washing will require up to 52,834 gallons of water per day. Heliostat wash water will not be collected for disposal—it is expected that the wash water will evaporate at or near the ground surface.”

However, in the 2011-11-03 Transcript Informational Hearing, pp. 139/140, Clay Jensen, Senior Project Manager, describes a different method of mirror cleaning.

“And I will also mention that -- that most of the mirror cleaning operation is handled by pressurized air rather than water. Water is a component, so there is water use to clean the mirrors. But it’s not – it’s not a one-to-one correlation.”

Comments

I could find no data, analysis or discussion of this alternative mirror cleaning method in the AFC files or other documents.

Questions

1. What exactly will be the process, details and methods used to clean the mirrors?
2. Will the use of pressurized air on mirror surfaces covered with dust cause any increase in surface degradation in a process that might be akin to small scale sand blasting?
3. Were the water requirements of 52,834 gallons a day projected with or without the use of pressurized air cleaning methods?
4. Will there be additional vehicles, specialized equipment and/or staff required for the air cleaning versus the water cleaning methods?

Recommendations

- A complete disclosure of mirror cleaning methods, including all relevant data and potential impacts needs to be included for analysis and review.

13. MIRROR SHADING

Background

In the 2011-11-17 Data Response Set, 1A, pp. 32, in response to Data Request 29, the applicant states:

“As the response to Data Request 29 points out, under some infrequent circumstances, it could be possible that heliostats that are not in operation might reflect sunlight onto ground level areas within the project site. However, in cases in which this might occur, the level of light concentration will not be high because the heliostat surfaces will be shaded to some degree by surrounding heliostats, reducing the amount of light that is reflected.”
(Emphasis added.)

Comments

It is unclear what positions the heliostats surface will be shaded by other heliostats and what positions heliostat surfaces will not be shaded by other heliostats.

The applicant also went on to reference the creation of a Heliostat Positioning Plan (HHP) similar to one created at Ivanpah. I don’t understand why this information would not have been included in the original AFC files submitted on August 5, 2011 or why it has still not been made available for review.

Questions

1. What angles do the heliostats have to be in to be shaded by other heliostats?
2. Due to close placement of heliostats, is there any “shading” that occurs from one heliostat to another under normal operations? If so, what would be the percentage of shading to mirror surfaces per heliostat group and approximately how many heliostats would be affected p/hour (depending on the time of day and season)?

Recommendations

- Prepare and submit a Heliostat Positioning Plan for the HHSEGS for review and opportunities to submit additional data requests regarding this information.

14. HELIOSTAT DAMAGE: LARGE WIND LOADS

Background

In the 2011-11-17 Data Response Set, 1A, pp. 24, the applicant describes heliostat procedures for wind protection.

"The wind protection and default position (called the "safe" position or orientation) is the 90- degree elevation - the mirrors being in horizontal position facing the sky. This position minimizes the risk of damage from large wind loads and is also the default orientation of the heliostats in case of loss of communication with the plant's control system or dysfunction of the plant's control system. With the solar field in "safe" position, at the ground level, the flux concentration will be low, similar to the sun's reflection on a lake." (Emphasis added.)

In Section 5.4, Geologic Hazards and Resources, pp. 7, the applicant describes the environment of the proposed HHSEGS site.

"Sandstorms are common in the Mojave Desert, and windblown sands can be an erosional and depositional force that may damage structures."

In Section 5.4, Geologic Hazards and Resources, pp. 10, the applicant also vaguely outlines what measures are currently pending that may address potential impacts due to windblown erosional forces.

"A design-level geotechnical investigation will evaluate potential windblown sand-related hazards as they relate to the HHSEGS site. Appropriate recommendations to mitigate the potential impacts will be provided, if significant."

Comments

"Safe" positioning of the heliostats poses three significant areas of identified issues and concerns that have yet to be addressed. The first is impacts of high winds potentially causing serious damage to mirrors and/or the heliostat structures. The second is the degree of anticipated shading from the safe zone positioning on vegetative resources and the third is the estimated percentage of power output loss due to heliostat positioning in safe modes.

High Winds and Local Impacts

Though Pahrump average wind speed is provided in Appendix 5.1A, Quarterly Wind Roses, the format is technical and difficult to understand without some sort of keys or technical training. While I'm a huge fan of the necessity of technical information's incorporation throughout all phases of the proposal and planning process, it also should be balanced with keys, sources and translations that can assist the general public in reasonably discerning the information presented without requiring specialized knowledge to interpret it.

With that said, though it took me a while, I found the key to interpreting the average wind speed data from Appendix 5.1A. The wind speeds are provided in meters per second (m/s) and can be [translated](#) by multiplying the m/s figures times 2.237.

What this revealed was a very incomplete picture of the impacts of wind in our area. After doing the calculations, I just sat there scratching my head and mumbling to myself, “This isn’t right...” I’ve personally seen a full sheet of ¾” plywood go cart-wheeling several dozen yards if it wasn’t secured and you can guess how far smaller stuff has been carried.

So I’ve attempted to portrair a more accurate picture of the “problem of wind” in our area with numerous examples including the incorporation of relevant meteorological data. But as it turns out, even the meteorological data isn’t fully addressing the severity of the situation either and frankly, I don’t have any recommendation on how to deal with that.

.....

On November 30, 2011, a huge windstorm began to rock Pahrump, Las Vegas and California and continued throughout the next day. It was definitely more of a “worse-case scenario” than most of our windstorms but it certainly was not an isolated incident either.

Here are some excerpts of a [summary report](#) released by NOAA on December 2, 2011 about the wind event.

11/30/2011

“Four distribution lines disrupted by the strong wind affected nearly 5,000 NV Energy customers with power outages.”

6:00 pm: *“Las Vegas area broadcast media reported a large tree down near Tonopah Avenue and North 5th Street”...[and]...“Las Vegas area broadcast media reported an 18 inch diameter...35 foot tall tree was uprooted in Summerlin.”*

6:55 pm: *“Bicycle Lake Airfield, San Bernardino, CA: Peak Wind Gust 74 mph. Sustained wind at time of observation 58 mph from the north-northwest”.*

7:29 pm: *“Pahrump: A peak wind gust of 58 mph was measured at the CW9143 Mesonet Site in Pahrump at an elevation of 2,540 feet.”*

7:52 pm: *“Nellis Air Force Base measured sustained winds of 43 mph with a peak gust of 58 mph at 8:01 pm.”*

12/01/11

2:30 am: *"Mesonet reported a 75 mph gust."*

4:00 am: *"Pahrump: The Pahrump Emergency manager estimated 60 to 70 mph wind gusts."*

7:00 am: *"Pahrump: Numerous shingles off the roofs of homes on the south side of Pahrump...Mainly south of Gamebird Road...and on the west side of Pahrump. Also a number of power lines fell down and started fires. Several trees also feel down. An 82 year old woman was injured when a carport was torn down by the wind and fell on her."*

7:15 am: *"Pahrump, "Trained spotter in Pahrump reported a maximum wind gust of 94 mph at 7:15 am this morning....another gust of 68 mph at 8:00 am...and 78 mph at noon. He reported that his boat was flipped over...RV was turned around...and he lost his tile roof on the green house."*

However, when I cross-referenced NOAA's Summary Report of this wind event with the meteorological data recorded at the KDRA Mercury Station, KDRA didn't appear to record the full impacts like NOAA's report did.

Specifically, [KDRA's Station Data](#) read:

11/30/11: *"Wind Speed Data: 8:53 am at 5 mph from WSW, 24-hour maximum 15 mph at 9:05 am, 24-hour minimum at 0 mph at 16:53 pm. No Wind Gust data."*

12/01/11: *"Wind Speed Data: 8:53 am at 36 mph from NE, 24-hour max at 36 mph at 8:53 am, 24-hour minimum at 3 mph at 9:53 am. Wind Gust Data: 8:53 am at 44 mph, 24-hour maximum at 18:53 pm at 52 mph, 24-hour minimum at 11:53 am at 17 mph."*

An online search of local news articles also found several stories over the last few years regarding wind advisory's, high wind warnings and wind gust measurements in Las Vegas that also reported higher levels of wind impacts than the KDRA Station does. (See Attachment I)

Despite this, I compiled high wind/wind gust data from KDRA between 2006-2011, but due to time constraints, limited it to just the three most important months. Though these are not traditionally our windiest months, they are the most important ones in relation to the HHSEGS's solar production. (See Attachment II: June, July, August 2006-2011)

Admittedly, compiling the highest levels of wind and/or wind gusts recorded for each day is a worse-case scenario compilation and fails to reveal a complete picture either. But it's very important to consider because gusty, howling wind can be a major player in our weather and this in turn may become a major issue to heliostat performance.

When the windstorm hit on 11/30/11-12/01/11, the KDRA Station measured a wind gust of 44 mph at 8:53 am, the closest time frame to the last report of NOAA report events. By comparison, here are some recorded wind gusts during June, July and August 2006-2011, which could be considered comparable, especially if they occurred with sustained wind speeds at the time.

On June 28, 2006, a wind gust of 48 mph was recorded. On June 7, 2007, recorded a wind gust of 56 mph. June 5, 2008, recorded a 48 mph gust. June 6, 2009 recorded a 43 mph gust. Both July 19th and 23rd, recorded a 44 mph gust. Between August 6-7, 2009, a 52 mph gust was recorded. June 16, 2010, recorded a 45 mph gust. August 29, 2010, recorded a 48 mph gust. June 24, 2011, recorded 44 mph gust while June 30, 2011, recorded a 45 mph gust.

If these gusts can down power lines, uproot trees, tear off carports, flip boats, and turn around R.V's, what are they going to do to the mirrors?

Additionally, the wind data from the KDRA station is apparently sufficient enough to earn a recommendation for the area as a potential wind power generation site. ("Assessing Wind Energy Potential For Nevada," D. Pepper, August 16, 2007, pp. 20)

Finally, the area is also routinely subject to "dust devils". Though their frequency and wind speeds cannot be quantified, they are a high velocity force that will also occasionally play an impactful role in the heliostat fields.

.....

I can reasonably predict three distinct impacts from the areas wind but to what degree, I cannot say.

1. Mirror Breakage

Due to the abruptness of wind gusts (one minute its calm, the next your hat is sailing off your head), the ability of the slow moving heliostats to the safe position will not be adequate protection in all instances. Because of insufficient warning or time to rotate the mirrors, there will most likely be some mirror cracking or breakage as a result.

According to Wikipedia, at some point in the past, an [SEGS](#) was defined as an entire collection of Solar Energy Generating Systems comprised of nine separate solar plants in the Mojave Desert. Obviously, this information is older because at least some of the solar plants cited comprising this system are no longer in service. However, it does present some data that may be of limited use to current facilities during the planning process.

Here, it stated that the greatest source of mirror breakage was wind with an estimated 3,000 mirrors typically replaced each year. The total mirrors for all facilities was reported at 936,384 units. This equates to approximately 1/3 of a percent. In the case of the HHSEGS facility, it will probably have to replace a minimum of 600 mirrors a year due to mirror breakage.

However, this does not account for the size or shape of the mirrors the applicant intends to use at the HHSEGS. Based on the information provided, it appears the majority if not all the mirrors in use at that time were parabolic troughs.

2. Surface Erosion

Dust and wind will cause scouring to mirror surfaces, regardless of their position. As a result, there will be some measure of annual degradation occurring to mirror surfaces.

3. Shading

In efforts to protect the mirrors from large wind loads, the heliostats will be required to be in the safe position a certain percentage of time instead of operational mode, i.e., daylight. Consequently, this will produce two separate but significant impacts; vegetative resources will be largely shaded and mirrors will be incapable of producing power.

The relevance of addressing these issues and incorporating critical data such as this could help understand a variety of issues affecting plant production and environmental impacts. These include: projected annual average hours mirrors will be unavailable for energy production and consequently necessitating the need for natural gas supplementation, estimating potential degradation of mirror surfaces and performance output, annual replacement costs of mirrors, projected timeframes when vegetation occurring beneath the heliostats will be shaded, possible glare emanations that are skyward directed with respect to the aviation impacts as well as potential glare emanation from cracked or broken mirrors to visual observations.

Questions

1. What times, based on seasonal solarility, will the heliostats automatically position themselves from “sleep” mode to operational mode and vice versa?
2. What will be the “trigger level” of sustained wind speeds that will result in heliostat positioning to safe mode during operational hours?
3. What wind gust or sustained wind speed is projected to be the maximum speed a heliostat/mirror assembly could absorb without damage in both safe position and operating position?
4. Is there any projected wind event that could result in catastrophic damage to heliostats, production and the surrounding environment? Specifically, how fast would wind have to blow and/or gust to produce a catastrophic event?

5. How does the applicant's larger mirror design (12' x 8.5' = 204.7 sq.ft) compare to parabolic trough mirrors in terms of projected damage and/or breakage?
6. How often will mirrors be checked for damage?
7. What is the estimated number of mirrors that will need to be replaced annually?
8. What is the estimated time it will take to replace mirrors? Also, will there always be a stock of replacement mirrors available or will they require special orders to replace them?
9. What safety features, if any, will prevent broken glass from dislodging from the heliostats and littering the ground?
10. Are there any safety impacts or concerns from unanticipated mirror glare resulting from cracks or broken fragments?
11. Can high winds result in any unusual or nuisance sounds on the heliostats or mirror surfaces?
12. Wind events can also be associated with significant electrical storms. What impacts, if any, will local lightening storms have on heliostat assemblies?
13. What are the estimated impacts of wind erosion to mirror surface degradation and system performance on an annual basis and over the life of the project?
14. What is the projected amount of time per month that heliostats will be in safe positions to protect them from wind damage? For example, on average three days in June, two days in July, six days in February, etc.
15. How does this translate to seasonal/annual percentage loss of availability and what impacts will this make on power production via solar output?
16. When mirrors are in safe position during normal operations, what is the degree of shading that will affect native vegetation? For example, 80% shading p/acre.

Recommendations

- Provide relevant data, analyze, discuss and project wind speed and/or gusts impacts to heliostat functions and system performance on a seasonal basis utilizing local meteorological data.
- Describe potential worse-case scenarios and what pre/post mitigation measures can be implemented for prevention and what "post-event" actions would be required including disposal plans for both normal operations and worse case scenarios.

15. STORMWATER MANAGEMENT & HELIOSTAT “CATASTROPHY”

Background

In Section 6.0, Alternatives, pp. 16, the applicant describes the proposed HHSEGS site in terms of water flow and previous soil disturbances.

“The proposed and alternative sites are located on alluvial fans where ground conditions are dominated by heavily disturbed braided ephemeral drainages caused by active erosion from flash flooding and other natural processes. These processes bury or obliterate evidence of archaeological sites.”

Comments

Despite the description above, photos submitted during this process have so far yet to highlight the true scope of where the HHSEGS proposed site will be located or what kind of impacts placement of the site on and next to an area “dominated by heavily disturbed braided ephemeral drainages caused by active erosion from flash flooding” might have.

While it is disturbing that little to no data, analysis or discussion has yet to occur regarding this important facet of the planning process, what is even more disturbing is, the applicant is already well aware of the potential impacts siting the project towards the bottom of an alluvial fan might have on heliostats - and still failed to submit any relevant information.

Specifically, the issue of potential flood damage to heliostats was a significant concern to BLM during the planning process for Ivanpah. As a result, the BLM presented two papers to the CEC during the Ivanpah planning process. The first is [Comments on Applicant’s Revised Storm Water Design Plans](#), (April 8, 2009), and the second is [AECOM Stormwater Modeling Review](#) (July 3, 2009).

These two documents have many critical points and discussions regarding stormwater impacts to heliostats and should be thoroughly reviewed by CEC staff and resolved prior to approval of the application. However, the most significant issue of concern was raised when modeling of stormwater impacts to heliostats presented in the AECOM Stormwater Modeling Review revealed it could have catastrophic results.

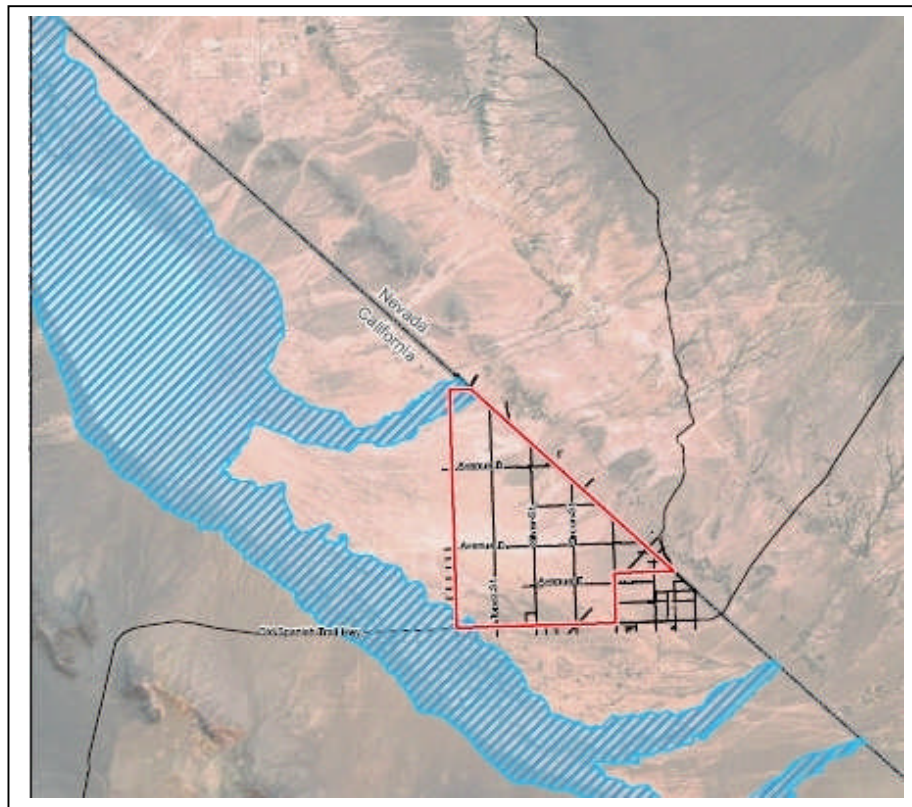
On pp.1, the summary stated:

“The primary finding is that some number of heliostats are likely to become unstable, due to stormwater-related scour, during the lifetime of the project. This result was identified not only in AECOM’s analysis, but in a review of the original West Yost results as well. The primary difference between the West Yost and the AECOM results is in the magnitude and extent of the potential problem. The West Yost results indicate that more than 12,000 heliostats could become unstable in a 100-year storm, while the AECOM results indicate that the number could exceed 18,000.” (Emphasis added.)

“Hidden Hills” is called Hidden *Hills* for a reason and I’ve included some photos to help better visually communicate the issue. Below is a snapshot of a map provided by the applicant of where the project will be sited.

Though it *is* clear that the HHSEGS project site will be built at the base of an alluvial fan, it is *not* clear where specifically the California/Nevada border crosses through the areas highlighted in the photos below or to what extent, if any, Bright Source will grade, fill, level or destroy any of this unique landscape in efforts to reduce stormwater impacts and flooding.

Figure 3, Flood Plain Map, Appendix 5.2E, pp.28, Jurisdiction Wetlands



All photos were taken in and around Hidden Hills on December 20, 2011.







The currently existing power line (below) can be seen on the left of the photo. It extends up to and through Hidden Hills and will most likely be the same route the HHSEGS will follow to install the transformers necessary for the plant.



A power pole sits atop the canyon in the photo on the left. The photo on the right shows the power lines moving into Hidden Hills.

The photo below is facing north from Charleston View. Though photo quality is poor due to its age, Hidden Hills is the white ridge in the background. The HHSEG site will be located directly on or below the line of hills.



Also, many years ago, my parents intended on building a very large-scale greenhouse and mistakenly decided that partially submerging it would help protect it from severe weather. They had a large hole dug in preparation but shortly after, economics prevented them from going forward with the greenhouse plans. As time passed, it became a storage area and quickly filled up with materials used for needed projects around the homestead.

Then came the evening when it had been raining ferociously and the results poured into the “grow hole” as it had come to be known. The water blew right through the dirt berms that surrounded it like they weren’t even there and filled it up in less than an hour.

Here is a small sampling of the results of that flood.



Finally, in the two BLM documents referenced earlier regarding potential stormwater impacts to Ivanpah, a number of factors of concern were cited that could and would affect the stability and operations of the site over the life of the project.

These included many assumptions by the applicant that had no data to support those assumptions, that many of the plans assumed a the best-case scenario's in all instances and failed to deal with the cumulative impacts that all the cited factors combined could contribute to rendering potential catastrophic results.

Some of these include the low impact design that attempted to maintain natural flow channels, assumptions that vegetation and its resulting erosional "blockades" would remain the same despite heavy disturbances from equipment, shading, disruption of natural water availability, large variations in soils across the site, compaction and alterations in landscape, etc.

As far as I know, the majority of these issues were never resolved with the exception of digging deeper holes for the pylons to hold the heliostats in hopes it would provide a sufficient anchor. The credibility that this solution would address all the issues affecting the catastrophic potentials and best-case assumptions remains to be seen.

Questions

1. Where are the actual boundaries of the HHSEGS plant in relation to Hidden Hills? Does it go through the canyons and hills or does it sit at the bottom of the canyons, hills, and washes?
2. To what degree, if any, will the applicant grade, fill or destroy the canyons, hills, channels and washes that comprise Hidden Hills?
3. If no changes are made to the canyons, hills, channels and washes that sit directly above the HHSEGS, how will the applicant deal with the stormwater run off and flashing flooding that will occur directly above it?
4. Will there be any difference in how the applicant anchors heliostats in the gypsum-like soil versus the soil types below Hidden Hills?
5. Given the nature and extent of Hidden Hills *"where ground conditions are dominated by heavily disturbed braided ephemeral drainages caused by active erosion from flash flooding and other natural processes"* and the already known long list of concerns at the Ivanpah site, why hasn't the applicant provided extensive and detailed planning documents on how these issues will be resolved at the Hidden Hill site?
6. Based on the topography and soils, is it possible that heliostat instability could be even higher at the Hidden Hills site that was projected at the Ivanpah site?
7. How will the proposed massive stormwater retention basin resolve these issues?

Recommendations

- Conduct similar modeling on stormwater impacts as was performed for Ivanpah in efforts to determine site-specific heliostat stability in the Hidden Hills area prior to approval of the application.
- Insure the detailed and broad array of concerns brought forward in Ivanpah, including lack of data supporting the applicants' best-case scenario planning assumptions, are reasonably resolved in the public review process prior to approval of the application.
- Require detailed analysis of how the applicants' current stormwater management plans, including the retention basin, will reduce stormwater impacts to heliostats to less than significant. This should be reasonably supported by data, not unsubstantiated assumptions or best-case scenario predictions.
- In order to ensure data adequacy and impact analysis is appropriately addressed, require zone specific plans of the project site are incorporated in the review process. This should include what areas and to what degree, grading, filling and leveling will occur within or along Hidden Hills, what stormwater mitigation measures will be employed per zone (i.e., will storm drainage pipes be required at key locations?), what variations in native soils will require special attention, how will equipment compaction and loss of native vegetation affect each zone, and so forth.
- Require the applicant to carry insurance against catastrophic stormwater events as those outlined as potentially occurring at Ivanpah due to the HHSEGS site positioning itself at the base of an alluvial fan and seated within an area heavily dominated by erosional forces.

HELIOSTATS/MIRRORS

ATTACHMENT I

Local newspaper articles regarding high wind warnings in the area.

Strong Winds Bring In Cooler Weather, Las Vegas Sun, October 10, 2008

<http://www.lasvegassun.com/news/2008/oct/10/cooler-weather-chance-rain-blowing/>

"Winds are expected to blow from 25 to 35 mph with gusts that could reach higher than 40 mph throughout the night."

Wind Advisory Issued For Las Vegas Valley, Las Vegas Sun, December 13, 2008

<http://www.lasvegassun.com/news/2008/dec/13/wind-advisory-issued-las-vegas-valley/>

"This morning, high winds averaging around 25 mph winds were blowing in from the southwest, with some gusts up to 40 mph, according to readings at McCarran International Airport."

Red Flag Fire Warning, Wind Advisory Coming Thursday, Las Vegas Sun, August 5, 2009

<http://www.lasvegassun.com/news/2009/aug/05/red-flag-fire-warning-coming-thursday-las-vegas/>

"This afternoon the weather service issued a wind advisory from 11 a.m. to 9 p.m. Thursday....south to southwest winds of 20 to 30 mph Thursday, with gusts from 45 to more than 50 mph."

High Winds, Wildfire Danger Continues Tonight In Las Vegas Valley: Wind Gusts of 60 mph in

forecast tonight for Summerlin, western foothills, Las Vegas Sun, September 29, 2009

<http://www.lasvegassun.com/news/2009/sep/29/red-flag-wildfire-warning-wind-advisory-issued-las/>

High Wind Advisory Continues For Las Vegas, Las Vegas Sun, October 27, 2009

<http://www.lasvegassun.com/news/2009/oct/27/high-wind-and-wildfire-warnings-issued-las-vegas/>

"The National Weather Service recorded gusts of 47 mph at McCarran International Airport, 54 mph at Rachel and 45 mph-plus in Death Valley, where visibility was reduced to a half mile. The weather service had issued warnings for damaging high winds and wildfires today, but canceled those this afternoon and issued a wind advisory that will be in effect through 8 p.m. A wind advisory means that winds of 30 to 39 mph or gusts of 40 to 57 mph are expected, making driving difficult for high-profile vehicles".

High Wind Warning Issued for Las Vegas Valley, Las Vegas Review Journal, March 30, 2010

<http://www.lvrj.com/news/high-wind-warning-issued-for-las-vegas-valley-89522582.html>

"Wind speeds hit 52 mph at Red Rock Canyon, 45 mph at North Las Vegas Airport and 43 mph at McCarran International Airport..."

Wind Gusts Up to 60 mph Possible, AP, April 5, 2010

<http://www.8newsnow.com/story/12257742/wind-gusts-up-to-60-mph-possible>

High Winds Rattle Las Vegas, Area Airports, Las Vegas Review Journal, April 28, 2010

<http://www.lvrj.com/news/high-winds-rattle-las-vegas--area-airports-92380794.html>

"Gusts reached 62 mph"

Wildfire Warning, Wind Advisory Issued For Las Vegas, Las Vegas Sun, June 20, 2010

<http://www.lasvegassun.com/news/2010/jun/10/wildfire-warning-wind-advisory-issued-las-vegas/>

"Gusty southwest to west winds reaching over 35 mph will continue through much of the day..."

Wet, Windy Weekend Ahead For Las Vegas, Las Vegas Sun, November 20, 2010

<http://m.lvsun.com/news/2010/nov/20/blustery-wet-weekend-ahead-las-vegas/>

"Southwest winds sustained at 20 to 30 mph, gusting up to 45 mph, are expected, with the strongest winds between 3 p.m. and 6 p.m., forecasters said."

Wind Advisory is Issued For Las Vegas, Las Vegas Sun, February 1, 2011.

<http://www.lasvegassun.com/news/2011/feb/01/wind/>

"Gusts between 40 and 50 mph expected throughout the Las Vegas Valley"

Wind Advisory Issued For Las Vegas, Las Vegas Sun, February 8, 2011

<http://m.lvsun.com/news/2011/feb/08/wind-advisory-issued-las-vegas/>

"Gusts between 40 and 50 mph expected throughout Las Vegas Valley."

Wind Advisory Issued For Las Vegas, Las Vegas Sun, March 7, 2011

<http://www.lasvegassun.com/news/2011/mar/07/wind-advisory-issued-las-vegas/>

"The weather service has issued a wind advisory for the Las Vegas Valley from 8 a.m. to 7 p.m. The advisory area includes much of Clark County, Mohave County and southeast San Bernardino County. Winds will be from the west at 20 to 35 mph, with gusts 40 to 50 mph, forecasters said."

Storm System Prompts Wind Advisory In Las Vegas..., Las Vegas Sun, March 19, 2011

<http://www.lasvegassun.com/news/2011/mar/19/storm-system-prompts-wind-advisory-las-vegas-bring/>

"Gusts up to 50 mph are possible in some parts of the region..."

Strong Storm Brings Gusty Winds, Rain Chances to Las Vegas, Las Vegas Sun, April 7, 2011

<http://www.lasvegassun.com/news/2011/apr/07/high-wind-warning-issued-las-vegas/>

"Southwest winds of 25 to 40 mph, with gusts to around 65 mph, are expected through the afternoon before decreasing during the early evening hours, forecasters said. Sustained wind speeds measured 32 mph at McCarran International Airport with gusts of 47 mph, forecasters said. At Red Rock Canyon National Conservation Area, one gust was clocked at 77 mph."

Strong Winds Hitting Las Vegas Valley, Las Vegas Review Journal, May 28, 2011

<http://www.lvrj.com/news/strong-winds-hitting-las-vegas-valley-122782553.html>

"Expect southwest to west winds from 20 to 35 mph, with gusts up to 50 mph....Winds were gusting at 45 mph at McCarran International Airport in Las Vegas at 3:00 pm."

Wind Advisory in Effect Until 7 PM, CBS Las Vegas News, January 21, 2012

<http://lasvegas.cbslocal.com/2012/01/21/wind-advisory-in-effect-until-7-pm/>

"Southwest winds 25 to 35 mph with gusts around 45 mph."

HELIOSTATS/MIRRORS

ATTACHMENT II

The following charts are [weather history data](#) of maximum recorded wind gusts or speeds (which ever were available for that day) in from the KDRA Mercury Meteorological Station in Nevada.

June 2006

Date	Maximum MPH
1	21
2	24
3	33
4	23
5	30
6	28
7	35
8	40
9	29
10	38
11	31
12	36
13	35
14	41
15	18
16	28
17	23
18	22
19	32
20	30
21	28
22	22
23	21
24	22
25	16
26	12
27	24
28	48
29	18
30	20

July 2006

Date	Maximum MPH
1	21
2	28
3	31
4	26
5	36
6	26
7	29
8	28
9	35
10	25
11	23
12	35
13	30
14	30
15	30
16	30
17	25
18	41
19	20
20	28
21	36
22	17
23	25
24	29
25	33
26	24
27	26
28	37
29	41
30	30

August 2006

Date	Maximum MPH
1	26
2	16
3	14
4	21
5	24
6	18
7	22
8	33
9	33
10	20
11	29
12	33
13	35
14	32
15	30
16	33
17	33
18	30
19	22
20	26
21	28
22	28
23	32
24	28
25	33
26	33
27	14
28	14
29	9
30	29
31	33

June 2007

Date	Maximum MPH
1	17
2	20
3	25
4	31
5	36
6	56
7	32
8	24
9	16
10	17
11	35
12	30
13	20
14	18
15	24
16	30
17	33
18	31
19	26
20	36
21	37
22	17
23	20
24	32
25	40
26	22
27	32
28	30
29	29
30	33

July 2007

Date	Maximum MPH
1	24
2	31
3	25
4	18
5	26
6	21
7	32
8	33
9	30
10	31
11	25
12	21
13	24
14	29
15	26
16	28
17	32
18	37
19	36
20	32
21	31
22	30
23	21
24	36
25	38
26	29
27	24
28	38
29	21
30	25
31	38

August 2007

Date	Maximum MPH
1	32
2	26
3	26
4	12
5	26
6	38
7	33
8	32
9	30
10	32
11	30
12	33
13	29
14	30
15	29
16	29
17	33
18	31
19	39
20	40
21	26
22	22
23	30
24	25
25	26
26	31
27	38
28	17
29	18
30	10
31	24

June 2008

Date	Maximum MPH
1	31
2	29
3	24
4	30
5	48
6	22
7	38
8	25
9	20
10	22
11	30
12	22
13	16
14	9
15	28
16	26
17	31
18	26
19	25
20	22
21	22
22	31
23	30
24	31
25	29
26	39
27	22
28	33
29	26
30	29

July 2008

Date	Maximum MPH
1	29
2	31
3	32
4	33
5	33
6	36
7	26
8	18
9	23
10	21
11	40
12	29
13	30
14	26
15	31
16	30
17	22
18	29
19	22
20	33
21	12
22	28
23	29
24	28
25	29
26	28
27	28
28	40
29	25
30	31
31	29

August 2008

Date	Maximum MPH
1	31
2	31
3	28
4	30
5	35
6	29
7	28
8	29
9	30
10	31
11	29
12	17
13	20
14	16
15	22
16	31
17	29
18	31
19	33
20	32
21	21
22	28
23	28
24	22
25	23
26	26
27	25
28	23
29	22
30	30
31	35

June 2009

Date	Maximum MPH
1	22
2	31
3	30
4	38
5	35
6	43
7	29
8	22
9	29
10	25
11	32
12	23
13	28
14	31
15	28
16	23
17	26
18	32
19	14
20	38
21	36
22	37
23	20
24	36
25	33
26	31
27	21
28	21
29	16
30	30

July 2009

Date	Maximum MPH
1	22
2	30
3	37
4	24
5	35
6	33
7	31
8	31
9	32
10	31
11	29
12	40
13	30
14	26
15	29
16	30
17	21
18	35
19	44
20	38
21	45
22	41
23	44
24	33
25	30
26	40
27	22
28	20
29	23
30	30
31	24

August 2009

Date	Maximum MPH
1	18
2	24
3	35
4	33
5	26
6	52
7	52
8	24
9	18
10	16
11	18
12	31
13	26
14	35
15	31
16	22
17	18
18	21
19	18
20	22
21	17
22	35
23	26
24	0
25	24
26	29
27	9
28	18
29	22
30	30
31	41

June 2010

Date	Maximum MPH
1	33
2	32
3	23
4	29
5	25
6	28
7	28
8	38
9	29
10	29
11	39
12	39
13	35
14	28
15	20
16	45
17	41
18	28
19	39
20	33
21	31
22	33
23	18
24	26
25	31
26	29
27	22
28	16
29	26
30	32

July 2010

Date	Maximum MPH
1	36
2	37
3	30
4	28
5	21
6	24
7	23
8	24
9	37
10	28
11	26
12	24
13	29
14	36
15	26
16	17
17	29
18	24
19	31
20	32
21	33
22	32
23	29
24	23
25	22
26	16
27	23
28	29
29	29
30	26
31	25

August 2010

Date	Maximum MPH
1	33
2	28
3	29
4	26
5	29
6	35
7	N/A
8	31
9	36
10	32
11	33
12	31
13	22
14	30
15	26
16	31
17	33
18	29
19	29
20	21
21	29
22	36
23	41
24	20
25	23
26	32
27	35
28	43
29	48
30	33
31	21

June 2011

Date	Maximum MPH
1	36
2	41
3	21
4	26
5	38
6	31
7	31
8	31
9	21
10	25
11	33
12	36
13	33
14	22
15	20
16	30
17	31
18	22
19	25
20	30
21	12
22	18
23	36
24	44
25	31
26	32
27	5
28	33
29	36
30	45

July 2011

Date	Maximum MPH
1	18
2	17
3	26
4	33
5	35
6	35
7	31
8	28
9	26
10	29
11	32
12	30
13	37
14	39
15	37
16	36
17	35
18	30
19	32
20	36
21	31
22	31
23	37
24	30
25	36
26	28
27	29
28	28
29	22
30	26
31	28

August 2011

Date	Maximum MPH
1	14
2	28
3	23
4	31
5	30
6	29
7	31
8	32
9	30
10	35
11	31
12	31
13	25
14	28
15	31
16	29
17	35
18	24
19	24
20	36
21	30
22	31
23	24
24	23
25	26
26	30
27	29
28	33
29	22
30	31
31	31

LAND USE, DEVELOPMENT AND ZONING

"An estimated 137 American workers die from job-related diseases every day. This is more than eight times the number of workers who die from job-related accidents. Fear of unemployment acts as a potent incentive for many workers to stay in and accept jobs that are health threatening. This practice amounts to "economic blackmail." Workers are often forced to choose between unemployment and a job that may result in risks to their health, their family's health, and the health of their community."

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*
A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.

LAND USE, DEVELOPMENT AND ZONING

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. REZONING: OBJECTIVE EVALUATIONS

Background

Recently, a letter from Josh Hart, Inyo County Planning Director, was submitted to the CEC on February 23, 2012. It was titled, “HHSEGS, AFC, **Outstanding County Land Use and Planning Issues**”. Upon review, two significant issues immediately became apparent.

The first issue is the fact that the applicant continues to fail to respond to Inyo County’s requests for compliance with land use planning and zoning issues. Mr. Hart’s letter references how Inyo County had “*previously conveyed [the project’s inconsistency] on numerous occasions since last July*” then closes the letter with, “*I have not received any communications from your team*”, despite Bright Source representing to the Commission that it was working with Inyo County.

This letter also makes reference to numerous planning issues and the time requirements associated with them that the applicant has been made of aware of. Yet, the applicant continues to fail to respond. As a result, the two most obvious conclusions that can be inferred are:

- a) Even during the application process, Bright Source is already unconcerned with compliance to Inyo County officials – the agency that will have significant oversight over the day-to-day operations and compliance of the project. If the applicant’s lack of concern is this prevalent now, we can only expect more of the same or worse once the application is approved.
- b) The possibility that it is a deliberate strategy by the applicant to avoid disclosure of planning and zoning impacts to the local community of Charleston View and surrounding environment during the CEC review process.

The second significant issue that stood out in Mr. Hart’s letter is how the Inyo County Planning Department appears to be ready and willing to bend over backwards to rezone the area as fast as possible if Bright Source would merely submit the required paperwork. In other words, the rezoning of the area seems to already be a foregone conclusion.

This inspires little confidence that Inyo County will place any zoning restrictions on the applicant to make life bearable on local residents during the construction or operation of the HHSEGS as the applicant’s “time constraints” seems to be of the highest priority to state and local officials alike.

Of additional concern was how the planning process was conducted by Inyo County for the St. Theresa Mission, whose landowners are also linked to the developers of the HHSEGS. During this process, Inyo County made no effort to notify residents of Charleston View or the majority of property owners regarding the proposed commercial development in their community. No letters were sent to local residents and no notice was placed on the one and only billboard located by the dumpsters. The public notification and participation process was limited to posting a notice in the Tecopa Library located 30 miles away, a few letters to property owners out of state, a publication in a newspaper over 200 miles away that few, if any residents or property owners in the Charleston View area receive, and an online notification, despite the lack of internet access in the area.

Questions

1. How is the rezoning of Charleston View and the surrounding area not considered a direct impact of the HHSEG application process? As a result, why is not being incorporated in the CEC review under cumulative impact requirements?
2. If through the Inyo County planning process, the HHSEGS project site fails to be appropriately rezoned for Industrial purposes, can the CEC ignore this lack of compliance to local ordinances and authorize the HHSEGS construction and operation anyway?
3. Is Inyo County required to prepare an Environmental Impact Statement regarding the significant changes to Charleston View and the surrounding area prior to amending the land use plan or rezoning the area for radically different purposes than the area was originally zoned for in the General Land Use Plan?
4. Does Inyo County's receipt of an estimated minimum amount of \$3.9 million dollars a year through the rezoning of the HHSEGS project site constitute a conflict of interest regarding its ability to objectively evaluate and serve local residents and property owner's needs in the area?

Recommendations

- Due to the anticipation of significant changes to Charleston View and the surrounding area, an Environmental Impact Statement should be required to disclose, analyze, discuss and mitigate adverse impacts that will be a direct, indirect and cumulative result of rezoning an Open Space/Recreational Area to one of Industrial. This should include exploring alternative sites within the Inyo County General Land Use Plans and alternative energy sources such as the Bloom Energy Servers.

- Insure that every effort is made to include local residents in Charleston View and the surrounding area as well as property owners within a 10-mile radius of the proposed HHSEGS project so that they are afforded opportunities for participation in the land use planning process. This should include notification letters to all residents and property owners, notices posted on the local bulletin board in Charleston View and opportunities to receive hard copies of all relevant documents submitted to local officials during the planning process with sufficient time for review prior to the issuance of the final decisions.
- Prohibit Final CEC Staff Assessments and Decisions regarding the proposed HHSEGS until the Inyo County Planning Department has completed all required legal land use planning obligations.

2. REZONING IMPACTS: INADEQUATE DATA

Background

In Section 2.0, Project Description, pp. 18, the applicant states:

“Noisy construction activities occurring within 500 feet of existing noise sensitive uses will be limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. Generally, construction activities will occur from 5:00 a.m. to 3:30 p.m. with a swing shift during heliostat assembly from 6:00 p.m. to 4:00 a.m. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., tower construction, foundation pouring, or working around time-critical shutdowns and constraints). During some construction periods and during the startup phase of the project, some activities will continue 24 hours per day, 7 days per week.”

Comments

A significant portion of discussions by CEC Staff and Inyo County has expressed needs and concerns regarding the HHSEGS lack of compliance with zoning ordinances and the Inyo County General Plan.

While the public has seen various documents over these last several months alluding to “talks” between the applicant and officials regarding significant issues related to planning and zoning, little to nothing has been disclosed or presented for review – despite many of these concerns resulting in significant impacts to long-time residents and local stakeholders.

The CEC and Staff, which is repeatedly cited as having “sole jurisdiction”, have focused little to no attention regarding potential impacts to the local community of Charleston View outside of the potential loss of local water resources.

Data requests have centered around visual impacts to those driving by as much as to local residents. Impacts to wildlife and plants have ranked higher than impacts to the community and those who will bear the brunt of the HHSEGS project's construction and operations still know about as much today as they did when the application was submitted in August.

The rezoning of an Open Space/Recreational area to an Industrial Zone is a radical change to the current environment. Residents who have enjoyed mostly silence, the sounds of wind, birds, and the occasional airplane or vehicle driving by will now be subjected to nearby explosions, excavations, pile drivers, and an army of delivery trucks and heavy equipment operating on a continuous basis for a minimum of 2 ½ to 3 years.

As I've reviewed documents and transcripts between the applicant and CEC, the pressure to authorize the HHSEGS in order to meet the applicants' time constraints and building schedules is a palatable underlying tension that is dominating the process. No one seems concerned about discussing time constraints on construction activities, disclosing or restricting nighttime equipment parameters or addressing the significance of what a 24 hour, 7 day a week schedule will do to local residents in order for everyone else's "deadlines" to be met – at the communities expense.

The entire construction and operation of the HHSEGS, as outlined above, depends on rezoning the site from one of Open Space/Recreation to Industrial. The CEC knows full well that without changes to zoning ordinances and the Inyo County General Land Use Plan, the proposed project fails to be in legal compliance with land use authorizations.

Significant changes to land use planning require detailed assessments and impact analysis as well as exploring reasonable alternatives. This process is suppose to be conducted with opportunities for public participation as well as exploring potential mitigation measures to reduce adverse impacts.

Yet residents of Charleston View still don't know what changes rezoning may entail or what the direct, indirect or cumulative impacts to the local community might be, how rezoning might affect their property values or taxes, what rights they may have to protect their interests during the planning process, or if officials are even working objectively to address or mitigate local stakeholders concerns.

If the CEC authorizes an industrial development in an area not zoned for industrial development, then that authorization compromises Inyo County's ability to conduct and assess changes and alternatives to land use plans in a fair, impartial and objective manner.

Additionally, the designation of the CEC's "sole jurisdiction" has effectively circumvented and even silenced other agencies, decision makers, interested parties, and local stakeholders who may be directly, indirectly or adversely affected by the proposed project and/or the reclassification of the area for industrial use.

The CEC should recognize and allow for a full assessment of the significant impacts that an Industrial Zone designation will have on the entire area and Inyo County as a whole – not just focus exclusively on the HHSEGS project site or potential short-term impacts within a six-mile radius.

Questions

1. What are the detailed descriptions of “noisy construction activities” that will be impacting the environment between the hours of 7:00 am and 7:00 pm, including specific kinds of activities, heavy equipment and/or machinery as well as what will be restricted?
2. What are the detailed descriptions of the “other” construction activities that will begin at 5:00 am, including specific kinds of activities, heavy equipment and/or machinery as well as what will be restricted?
3. What are the detailed descriptions of construction activities that will occur between the hours of 6:00 pm and 4:00 am, including specific kinds of activities, heavy equipment and/or machinery as well as what will be restricted?
4. If time restraints and restrictions are placed on the construction of the HHSEGS in order to accommodate the local community’s needs as well, such as limiting activities between 8:00 am to 8:00 pm and/or to only 5 versus 7 days a week, how much of a delay would that create in their schedule and completion dates?
5. If officials refuse to sacrifice basic living standards of local residents to accommodate Bright Sources desired construction schedule, would the applicant still have the available resources to complete the project under alternative schedules?
6. As it stands, the rezoning of the Charleston View area from Open Space/Recreation to Industrial will occur in separate planning processes removed from the HHSEGS application process. Yet the CEC has sole jurisdiction regarding the authorization and construction of the HHSEGS. So how can the CEC fail to disclose, analyze, review or mitigate significant and cumulative impacts to the community when their exclusive decision will be directly responsible for those impacts?
7. Since the rezoning of the Charleston View area to an Industrial Zone is a significant and direct impact resulting from the Application of Certification filed with the CEC, how can the Inyo County planning process be separated and exempt from cumulative impact analysis requirements during the CEC application and review process?

Recommendations

- Require disclosure and detailed analysis of construction and operational activities during the CEC review process, including specific definitions and kinds of “noisy” versus “general” construction activities, specific types of heavy equipment, machinery and operational requirements that are segregated by specific hours for specific activities as well as any limitations, restrictions or prohibitions that can be incorporated to mitigate noise, vibration and nuisance impacts to local residents.
- Submit and assess alternative construction schedules that can provide for reasonable accommodations for both the community of Charleston View as well as the applicant instead of the currently proposed unrestricted and undisclosed “potential” 24-hour, 7-day a week construction schedule with zero mitigation measures planned for local residents forced to bear the brunt of these activities for up to 3 years.
- Inyo County should be required to develop an Environmental Impact Statement to assess significant impacts resulting from rezoning what is now an Open Space/Recreational area into an Industrial Zone as these impacts will not be limited to just a few square miles – it will affect all future land use, development and planning for the area for decades to come.
- Delay Final CEC Staff Assessments and Decisions regarding the proposed HHSEGS until the Inyo County Planning Department has completed all required legal land use planning obligations.

3. NOISE POLLUTION: A BUREAUCRATIC VOID

Background

There are significant concerns from at least some local residents and stakeholders (including myself) regarding the impacts of noise resulting from the construction and operation of the HHSEGS to the environment.

In Section 5.7, Noise, the applicant provides several relevant sources of analysis, data and/or information that require further review and/or mitigation. These include:

A) Table 5.7-1, Laws, Ordinances, Regulations and Standards Applicable to Noise, pp. 3, states:

“Inyo County Code: The County Code does not establish specific numeric limits that are applicable to the operation of the project. Rather it requires the County Planning Commission to establish an appropriate noise limit.”

B) Table 5.7-2, *Maximum Allowable Ambient Noise Exposure by Land Use (Inyo County Noise Standards)*, pp. 5, provides a chart shows levels of noise grouped by land use type with parameters labeled “Normally Acceptable”, “Conditionally Acceptable” and “Unacceptable”. The source of this information comes from the Inyo County General Plan. Residential areas allow a maximum noise level of up to 60 dBA. Noise levels between 61-70 dBA’s require “Conditional Acceptance”. Definitions for “Conditionally Acceptable” require,

“New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed insulation features have been included in the design.” (Emphasis added.)

C) Regarding the CEC’s determination of significant noise impacts, pp. 9,

“In addition to the County criteria, the CEC has determined that daytime operational increases up to 10 dBA are considered less than significant noise impact under the California Environmental Quality Act (CEC 2010). Daytime operational increases above 10 dBA have a potential significant impact; however, the potential for an impact does not necessarily mean that there is an impact. Rather, a potential impact means that the project noise levels need further evaluation. The CEC staff has also concluded that construction noise is typically insignificant if: (1) the construction activity is temporary; (2) use of heavy equipment and noisy activities are limited to daytime hours; and (3) industry standard noise abatement measures are implemented for noise-producing equipment.” (Emphasis added.)

D) Table 5.7-4, *Typical Sound Levels Measured in the Environment and Industry*, pp. 8, presents descriptions of weighted sound level decibels and noise environments. Rustling leaves are rated at 30 dBA and birdcalls at a distance are rated at 40 dBA. (Note: These are the predominate sounds and should reflect the dBA rating of the area.)

E) Table 5.7-5, *Summary of Measurement Results (dBA)*, pp. 9, show the applicants presentation of monitoring sound levels at two locations in the vicinity over a nine-day period.

Map ID	Location Description	Average Daytime Leq	Average Nighttime Leq	Average Ldn
M1	St. Therese Mission Project	42	34	47
M2	Residential Monitor	45	40	51

F) Table 5.7-6, Construction Equipment and Composite Site Noise Levels, pp. 10, provide dBA descriptions of various high impact construction activities at measured distances of either 50 ft. or 1 mile. Most of these produce dBA levels of 85 or above at 50 ft. Table 5.7-7, Noise Levels from Common Construction Equipment at Various Distances, pp. 11, describe dBA levels for common heavy equipment at various distances including 50 ft., 1,500 ft., 3,000 ft. and 1 mile. Most of these produce dBA levels at 50 ft. of mid-to high 50 dBAs.

G) Table 5.7-8, Sound Power Levels Used to Model HHSEGS, dBA, pp. 13, provides descriptions dBA levels of significant plant components including the steam turbine generators, transformers, auxiliary boilers, etc. All sound power levels are rated at well over 100 dBAs. However, the applicant states,

“Operational noise from the HHSEGS is predicted not to exceed 54 dBA at the closest resident or 52 dBA at the St. Theresa Mission.”

Comments

The first issue is the credibility of how the applicant listed the sound monitoring results from St. Theresa Mission and a local residence. First, the applicant provides an “average” for daytime, nighttime and then an “overall” rating - yet somehow, the “overall” ratings exceed both the daytime and nighttime averages without further explanation.

On pp. 7, the applicant describes adding 6.4 dBAs to averages for continuous noise sources but how does that apply to Table 5.7-5, titled “Summary of Sound Monitoring Results”, which is different than, “Summary of Sound Monitoring Results After Adding Additional Sounds That Didn’t Exist In The Area.”

Secondly, St. Theresa is located directly adjacent to the highway. If any of these two areas were to have a higher noise level, it would be here. Yet, the residential property of choice somehow had higher noise levels than St. Theresa did and less of a reduction of those noise levels at night.

Additionally, the general dBA level for the area – based on my own experience – should have reflected an average between 30-40 dBA or less, due to little traffic, the sole land use being residential and the utter lack of any commercial activities whatsoever. This is a remote area and the sounds of the environment reflect that isolation by being dominated generally with “natural” sounds; wind, birds, dogs barking and occasionally a donkey bray from a neighbor. (However, Frontsite Gun Range has recently become an intermittent source of gunfire noises, often from morning until night.)

I don’t know what kinds of activities the resident being monitored was involved in at the time but I have a hard time believing those activities accurately recorded the sound ambience of the area or the credibility of the applicants sound monitoring results “averages”.

The second issue is the CEC and Staff's recent definition of "significant" noise impacts.

First, the decision to *always* allow up to 10 dBA daytime increases without site specific review is highly questionable. What if the dBA levels are already at the peak of noise allowances? Does this mean that an area already at 70 dBA can be increased to 80 dBA, no questions asked? Furthermore, this definition only covers daytime noise levels – defining acceptable nighttime noise levels is so far a "mute" subject.

Secondly, so far the evaluation of the HHSEGS in relation to noise disturbances have failed to meet even the CEC and Staff's own criteria. No discussion, analysis or data requests have occurred regarding the use and/or limitations of heavy equipment and noisy activities at night, what hours the CEC/Staff defines as daytime/nighttime activities, no limitations or restrictions have been discussed regarding nighttime dBA levels whatsoever nor have any discussions, analysis or data requests focused on industry standard noise abatement measures and their implementation.

With respect to the CEC and Staff's own criteria as to what constitutes "significant" noise levels during daytime operations - even though I seriously question the credibility of the applicant's sound monitoring results – it still indicates that the predicted operational noise from the HHSEGS (between 52-54 dBA) exceeds the nighttime average for St. Theresa and coincidentally, reaches the maximum threshold for its daytime average.

The third issue is Inyo County's General Plan is used by the applicant to establish acceptable noise levels at and around the project site, even though the proposed project fails to comply with the Inyo County's General Plan and zoning criteria.

Of course, there are methods established to address site-specific noise level permits but this requires the County Planning Commission to establish specific numeric limits for sound levels. It may also be allowed under a "Conditionally Acceptable" designation but that also requires a detailed analysis including noise reduction requirements prior to any new construction or development. Yet both of these methods, which are included in the General Plan to allow planners flexibility, are being circumvented by the CEC's sole jurisdiction and so far, the CEC is failing to act on the County's behalf.

With respect to projected dBA noise levels from the major components of the plant during operations, the applicant clearly shows that ALL listed components result in sound levels well over 100 dBAs with the lowest dBA rating at 106 dBA and the highest at 117 dBA.

According to the Inyo County General Plan, even the highest rated industrial zoning tops out at anything over 81 dBAs. The majority of land use types consider anything over 75 dBAs to be unacceptable and this rating results in a determination that *"New construction or development should not be undertaken."*

Unlike the applicants' modeling of noise level ratings, the Inyo County General Plan's Maximum Allowable Ambient Noise Exposure does not provide any distinction of noise levels at various distances. Therefore, it is unclear if machinery or equipment that produces a dBA level that exceeds these unacceptable noise limits *at any distance* would be considered by Inyo County as acceptable for any reason.

As it stands, residents of Charleston View and the surrounding area are being thrust into a bureaucratic void where no one is addressing potentially significant and unacceptable noise levels, reviewing or insuring the accuracy of applicants' monitoring results, "averages" or projected impacts, discussing potential mitigation measures or establishing restrictions and/or prohibitions on unacceptable noise levels.

The applicant documents how the HHSEGS will result in many of the activities associated with the sites construction and operations that have dBA outputs of significant levels – even by normal standards. Modeled through computer parameters that estimate distance, dBA levels were brought down to "standards" deemed acceptable within what is now considered "normal" environments in the current industrial/technological age.

However, this analysis fails to reveal the unique opportunity that such a remote environment provides, that being the almost complete absence of human made noise on any level. The sound of a single car coming down the highway can be heard for miles. Conversations from other residences several lots away can be heard, often distinctly. Music being played at one end of Charleston View can often be heard at the other end of the community. In other words, this is generally an incredibly quiet place and one of its profound qualities.

The introduction of industrial activities and operations scheduled to occur 24 hours a day 7 days a week within this remote location will permanently and significantly change the profound silence to one of non-stop industrial noise events and hums.

Questions

1. Has CEC Staff received, requested, or reviewed the raw data results of the applicants' sound monitoring tests from St. Theresa Mission and the other residence used to gather this data from the area?
2. Has CEC Staff reviewed the applicants' modeling methods, averages, and predicted operational noise impacts for accuracy?
3. How did the applicant determine the "overall" ambient sound levels were higher than both the daytime/nighttime averages at both monitoring sites?

4. How did the applicant determine that a 117 dBA level from the Auxiliary Boiler would only produce a 52 dBA at St. Theresa Mission (located approximately a half a mile away), when a pile driver rating at 50 ft. produced at 104 dBA and 64 dBA at 1 mile away?
5. What does the CEC recognize as daytime/nighttime hours, nighttime operational noise limits and significant noise thresholds requiring mitigation specific to the proposed project?
6. Who will have jurisdiction and/or be responsible for establishing acceptable/non-acceptable noise limits produced from the construction and operation of the HHSEGS? To residents of Charleston View and the surrounding areas?
7. There are many indications that noise levels produced by the construction and operation of the HHSEGS may exceed “normal” standards and acceptable ratings. However, even these “normal” noise levels will be significant to local residents due to the remoteness of the area. So what mitigation measures, restrictions or plans can be implemented that will help reduce these adverse impacts to local residents and the surrounding area?

Recommendations

- CEC Staff should review the raw data from the applicants sound monitoring of the area as well as how it was modeled in order to evaluate its potential credibility. In the event sound monitoring results are questionable, independent sound monitoring and modeling should be initiated – at the applicants’ expense.
- CEC and/or Staff should provide clear definitions and parameters of daytime/nighttime hours of acceptable noise levels, kinds of activities, machinery and equipment use restrictions, what qualifies as “significant” nighttime noise level increases and how the HHSEGS will comply with those levels during both the construction and operational phases of the project.
- CEC and/or Staff should provide plans and mitigation measures to be implemented to reduce adverse noise impacts resulting from the construction and operations of the project.
- As per the Inyo County General Plan, require a detailed noise analysis including noise reduction requirements prior to any new construction or development and establish specific numeric limits for sound levels at and around the HHSEGS project site prior to project approval. Clarify Inyo County’s definition of Unacceptable dBA levels and at what distances relative to the project site.
- As a condition of the permit, insure appropriate noise enforcement standards have been developed and are capable of being implemented. This should include avenues for local residents of Charleston View and the surrounding area to file noise complaints if necessary and actions that can be taken to reduce adverse impacts.

4. SITE RESTORATION/RECLAMATION PLAN

Background

On February 27, 2012, the Inyo County Planning Department submitted a letter to the CEC titled, “Reclamation Plan” regarding the HHSEGS. In it, Josh Hart describes the lack of discussion or submission of a Reclamation Plan for the area between the county and the applicant. The letter outlines the necessity of developing a Reclamation Plan for the project site that includes a minimum of considerations. One of these is:

“Requirement that the project site be restored to its pre-project condition, including the requirement to revegetate the site with native plants. It is recommended that a native plant nursery be established to test native plants to be utilized in order to assure revegetation of the project site.”

In Section 6.0, Alternatives, pp. 15, the applicant states:

“The HHSEGS site is also more disturbed than the Calvada South site because roads had been graded for the planned residential development.”

Comments

Though the quote in Alternatives above is used to substantiate the applicants’ description of the “planned residential development”, the applicant provides several references in the AFC files to how the area has already been altered due to a planned residential development – though the applicant fails to provide any context for when the referenced roads were created or what time frame that grading occurred.

In Attachment I, I have included an electronic copy of a brochure that was created by the owner/developer to promote the sales of the planned residential development referenced in the applicants’ AFC files. Here, the developer touts the advantages of land purchases where, “Every Rancho fronts a graded road, in a planned community.” Though it is not dated, I would guess this brochure was created somewhere in the late 1950’s to mid-1960’s. (Note: I excluded one of the pages of the brochure due to a photo of a cultural resource on the site.)

What this means is, the graded roads of 50-60 years ago are still reasonably intact. In other words, little to no vegetation has “reclaimed” them naturally. This provides a fair indication of the extent of long-term damage soil compaction, grading and other disturbances have on this kind of environment.

Without a seriously considered and analyzed Reclamation Plan – not just the current “minimum” standards Inyo County recently requested – the area will be incapable of any significant restoration whatsoever.

Questions

1. Based on the lack of vegetative recovery demonstrated by the graded roads at and around the project site, what is the estimated time of “natural” recovery for similar disturbances to vegetation as a result of the construction and operations of the HHSEGS?
2. Since the applicant seems generally unwilling to communicate with Inyo County regarding critical land use issues and Inyo County has been eliminated from having any authority regarding planning efforts in or around the HHSEGS due to the CEC’s sole jurisdiction, what guidance, policy, or requirements for a Reclamation Plan has the CEC and/or Staff developed for the area?
3. Since the applicant seems generally unconcerned with Inyo County’s role in the development and approval of the HHSEGS, will the CEC be assuming all oversight of the HHSEGS for the life of the project including its reclamation?

Recommendations

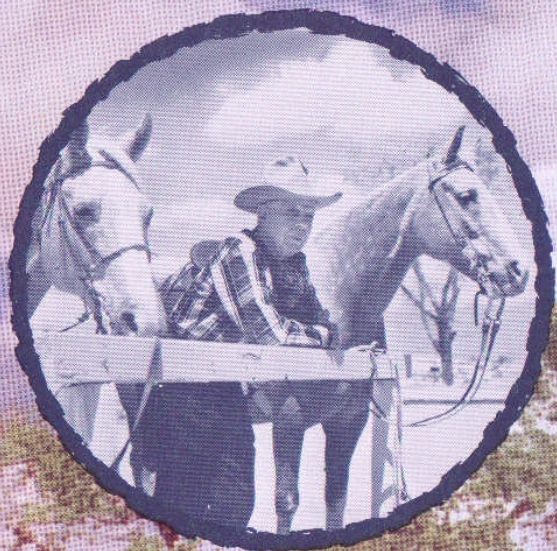
- The CEC’s should partner with Inyo County to develop a Reclamation Plan that can feasibly restore the project site to its pre-project conditions. Due to the unique landscape of the area, this should include restoring native soil resources and types that support the varying native vegetation species including sensitive plant species, revegetation of native plant species, soil decontamination from emissions and hazardous/non-hazardous substances applied to soils over the life of the project as well as restoring hillsides, washes and drainages that may be eliminated due to grading, filling or other construction or operational activities.
- Require Bright Source or any future owner/operator to carry insurance against environmental risks including environmental contamination as a condition of the permit over the life of the project.

LAND USE, DEVELOPMENT AND ZONING

ATTACHMENT I

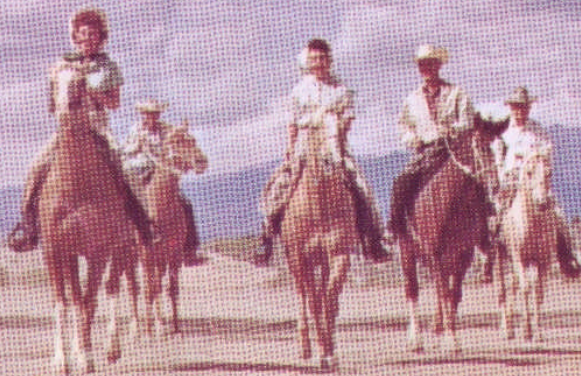
Hoot Gibson's Hidden Hills Ranchos Sales Brochure

"Every Rancho fronts a graded road, in a planned community."



HOOT GIBSON'S

HIDDEN HILLS RANCHOS





*Hoot greets fly-in buyers on large all year "Hidden Ranch" airport,
Los Angeles 90 minutes. Last Vegas 20 minutes. See Mt. Whitney and L.A. U.S. charts.*

**This rancho you buy TODAY will give to you and your children FOOD,
PROFIT, SECURITY and ENJOYMENT for generations to come.**

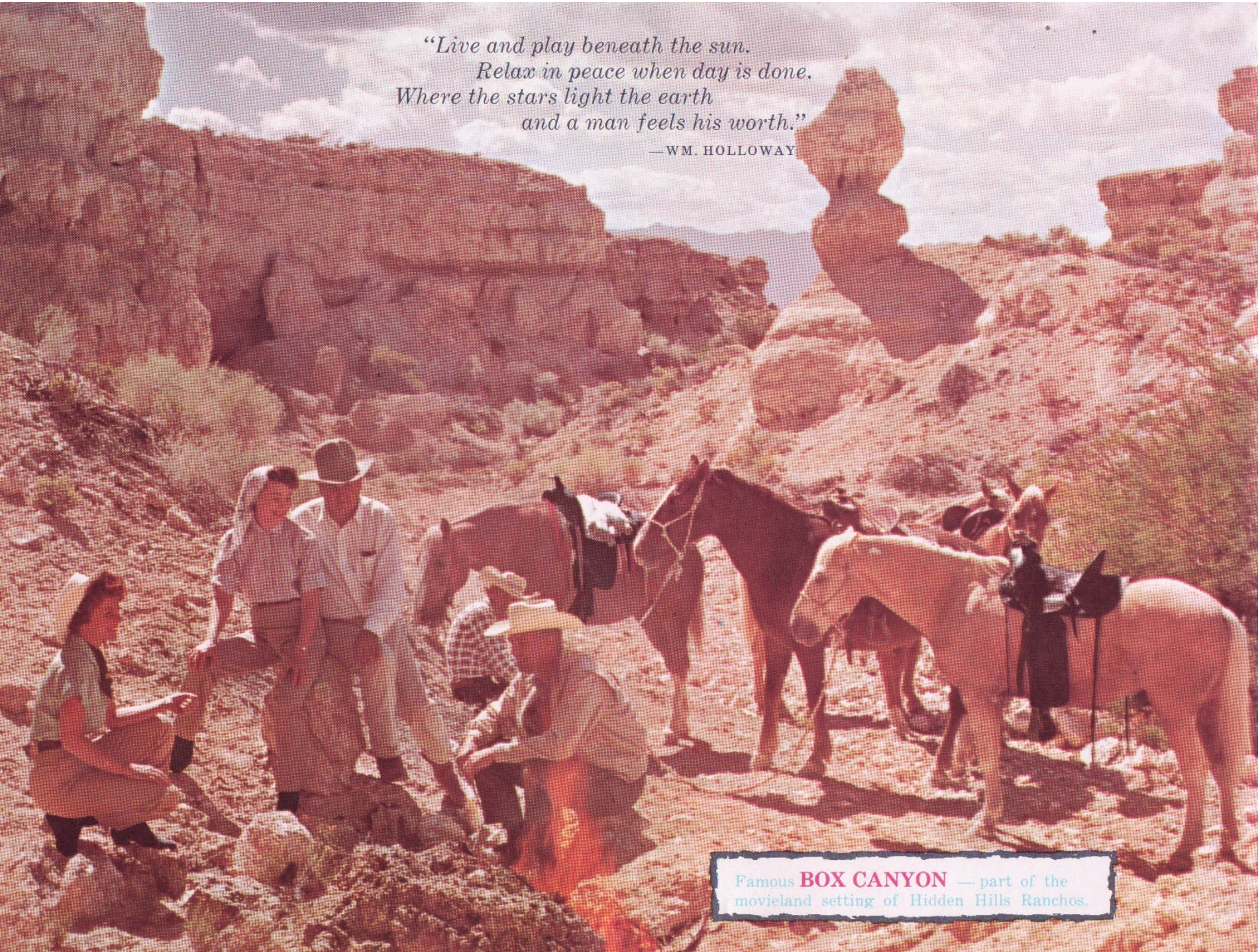
Old Ranch Headquarters.



- ✓ Deep fertile, level, rock-free soil and in sunny Southern California.
- ✓ Underground water for development.
- ✓ Healthful, smog-free climate. 2600 feet elevation.
- ✓ Only 55 minutes from fabulous Las Vegas, Nevada. 30 minutes to free government-owned Tecopa Hot Springs.
- ✓ Summer and winter sports of Mt. Charleston and Lake Mead — 90 minutes.
- ✓ Every Rancho fronts a graded road, in a planned community. No survey or other expense.
- ✓ Large all-year Government approved airport.
- ✓ You will be investing in a fertile California valley with a rich future of profit, enjoyment and real pride of ownership.

*Sparkling clear water
from one of several wells.*





*"Live and play beneath the sun.
Relax in peace when day is done.
Where the stars light the earth
and a man feels his worth."*

—WM. HOLLOWAY

Famous **BOX CANYON** — part of the
movieland setting of Hidden Hills Ranchos.

OPERATIONS

“Close Corporate Welfare Loopholes. Tax breaks and corporate welfare programs have produced few new jobs by polluting firms. However, state-sponsored pollution and lax enforcement have allowed many communities of color and poor communities to become the dumping grounds. Industries and governments (including the military) have often exploited the economic vulnerability of poor communities, poor states, poor nations, and poor regions for their unsound, "risky", and nonsustainable operations. Environmental justice leaders are demanding that no community or nation, rich or poor, urban or suburban, black or white, should be allowed to become a "sacrifice zone" or dumping grounds. They are also pressing governments to live up to their mandate of protecting public health and the environment.”

*“Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities”
A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002*

OPERATIONS

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. AUXILIARY BOILERS: HOURS OF OPERATIONS

Background

In Appendix 5.1C, Emission Control Technology Assessment, pp. 2, the applicant states:

“The auxiliary boilers will be started each summer weekday afternoon and are expected to take several hours to come up to full capacity. They will then operate for several hours before being shut down.” (Emphasis added.)

In Appendix 5.1B, Emissions and Operations Parameters, Table 5.1B-8, pp. 9, the applicant states Auxiliary Boiler Operations will operate in the summer on average 4.6 hours per day.

Auxiliary boiler operation	June - Sept.		Oct.-May
	(2)	(3)	
days	86	36	243
operation, hours/day (average) (1)	4.6	0	0
Total hours/year			400

Comments

There is a significant discrepancy between what the applicant advertises for projected hours of auxiliary boiler operations.

Questions

1. What is the definition of several hours as used in the first description of auxiliary boiler operations?
2. How reliable is the estimated 4.6 hours of auxiliary boiler operations June-September?
3. What are the projected emissions and impacts for auxiliary boilers for each hour of operation?

Recommendations

- Clarify and resolve discrepancy of auxiliary boiler operational hours and associative estimated emissions and impacts.

2. TO BOIL OR NOT TO BOIL: HOW MANY ARE THERE?

Background

In Section 6.0, Alternatives, pp. 22, the applicant states:

“The proposed project configuration includes five auxiliary gas-fired boilers for each plant. While the elimination of these boilers was considered due to the reduction in air emissions and cost, they have been included to enhance the operation and economics of the project.” (Emphasis added.)

“Each plant includes three auxiliary (supplemental) boilers that will be used for augmenting the solar operation when solar energy diminishes or during transient cloudy conditions.....These boilers will be used primarily during the summer in the late afternoon and early evening when electrical energy usage peaks.” (Emphasis added.)

On February 27, 2012, the applicant submitted a letter to the CEC stating:

“BSE is considering the removal of the large auxiliary boilers from the designs for HHSEGS. The removal of the large boilers from the project’s design is referred to as the “Boiler Optimization.” (Emphasis added.)

Comments

Prior to submitting the Application for Certification, Bright Source said they had analyzed the alternative of eliminating five auxiliary boilers from the project design but believed their inclusion enhanced the operations and economics of the HHSEGS.

But on second thought, they have changed their minds.

Instead of enhanced performance and economics being the deciding factor of the HHSEGS design, they are now opting for reduced air emissions and costs. But it’s a game changer in mid-swing and on top of it, Bright Source was sure to keep up the pressure on CEC Staff by reiterating their constant theme of how their time schedule and commercial interests are of paramount importance.

Questions

1. Does each plant design include five auxiliary boilers total or eight auxiliary boilers total, (five auxiliary and three auxiliary (supplemental) boilers)?
2. How many and what kind of auxiliary boilers will be eliminated from the project design under the new “Boiler Optimization” plan?

3. What are the differences between “enhanced performance” *with* the auxiliary boilers and performance *without* the auxiliary boilers?
4. What are the economic differences between with and without the auxiliary boilers?
5. Does the removal of the auxiliary boilers equate to the HHSEGS being less capable of providing power during peak energy periods, during cloudy or windy days and after the sun sets?
6. Will the elimination of the auxiliary boilers result in changes to operational water requirements?
7. What are the total impacts of removing the auxiliary boilers from the design plans?
8. Will the applicant limit impact analysis to merely changes in emissions or will an entire new analysis be submitted for any area this significant design change will impact and/or affect?
9. If the CEC allows the applicant to change the design plans by removing the auxiliary boilers from the HHSEGS, can the applicant again change their minds and reincorporate the auxiliary boilers shortly before the CEC issues their final decision or even after project approval by merely citing the original data presented in the AFC files?

Recommendations

- If the CEC accepts these significant design changes, prior to issuing a decision require a full impact analysis to be submitted for analysis and review on any portion of the HHSEGS project the removal of the auxiliary boilers will affect.
- Prohibit the applicant from changing their minds again by trying to reincorporate the auxiliary boilers through citation of original AFC files/data since questions, identified issues and impacts will fail to be fully resolved through the applicants’ abandonment of the original design plans.
- Prohibit the applicant from applying any additional double standards regarding the impacts of commercial interest on the proposed project and its required review. For example, the applicant continually urges expediency from CEC review process to placate commercial/investor interests but then cites data requests related to commercial aspects of the project are outside the scope of environmental analysis and/or review.

PUBLIC SAFETY

“The environmental justice framework adopts a public health model of prevention (i.e., elimination of the threat before harm occurs) and the precautionary principle as the preferred strategy.”

*“Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities”*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002

PUBLIC SAFETY

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. THE TECOPA ROAD: WHAT ABOUT THE NEVADA SIDE?

Background

In Section 5.12, Traffic, pp. 14, the applicant responds to required “significance criteria” questions regarding the impacts of the HHSEGS project.

*“4. Substantially increase hazards due to a design feature or incompatible uses.
No Impact. Construction-related traffic is not expected to cause impacts to safety because it will not be routed through residential areas. Therefore, HHSEGS would result in a finding of no impact under this criterion.”*

In the 2011-09HH Applicants Response to Data Adequacy Review, Supplemental Response, Traffic and Transportation, pp. 46, the applicant responds to questions regarding road classifications and design capacity. The response is limited to SR160 only, which is a recently upgraded high quality road in Nevada but fails to include discussions or descriptions of approximately 11 miles of the Tecopa Road on the Nevada side.

In 2012-02-22, the CEC received a letter from Inyo County regarding Socio-Economic Impacts of the HHSEGS. In it, Inyo County Administrative Office Kevin Carunchio states:

“We were also unable to obtain any information about the proportion of the considerable heavy truck traffic likely to come from the California and Nevada sides of the project; in its present condition, The Old Spanish Trail, an historic, key road to the project is simply not able to handle the traffic that will be induced by the project and will deteriorate rapidly if it is not reconstructed in advance of the commencement of construction activities related to the project.” (Emphasis added.)

Included in the Inyo County Socio-Economic’s letter is a Memo from the Department of Public Works dated 12/21/11. Interim Public Works Director Doug Wilson directly discusses significant impacts to the Tecopa Road – on the California side only. Here, he states:

1.) Deterioration of Old Spanish Trail Road:

“.....This impacted roadway stretches for 30.1 miles from Highway 127 to the Nevada State line. The existing paved width for this roadway is approximately 22 feet (varies). We anticipate that the construction portion of the project would subject the roadway to severe truck traffic loads (approx. 85,000 total vehicle trips – per Gruen Gruen & Associates Construction Delivery Schedule Spreadsheet) and damage it to a point requiring “full section” reconstruction.” (Emphasis added.)

In the 2012-02-15, Record of Conversation (ROC) between Steve Kerr and Larry Levy, Acting Chief, Southern Inyo Fire Protection District (SIFPD), an Emergency Medical Response Needs Assessment Form provides basic summary data regarding the potential impacts of the HHSEGS. On pp. 3, the following question and response by SIFPD states:

“Q. Could the project trigger a need for additional medical response services? Please explain. During project construction:

A. Yes. The project will at least triple our District’s population during the construction phase. All roads are narrow with little or no shoulders. Increased traffic will result in increased motor vehicle accident responses.” (Emphasis added.)

Comments

When I originally read the applicants “No Impact” determination regarding vehicle traffic resulting from the HHSEGS, I was deeply concerned about its lack of credibility. Anyone who has driven the Tecopa Road can immediately recognize the high likelihood of significantly increased public safety hazards and road damage that will occur as a result of the proposed project.

As later described by Inyo County, the roads are narrow, often lack shoulders and in some areas, contain winding curves with poor visibility. Oversized vehicles and large construction trucks will most likely either require edging over into the oncoming lane or outside wheels hitting the narrow shoulders and spitting rocks/gravel as they go by.

It is also apparent that the applicant anticipates a great deal of the construction “army” to arrive via SR160 on the Nevada side. While Inyo County is discussing the poor road conditions and public safety hazards on the California side, no one is yet discussing the 11-mile stretch of the Tecopa Road on the Nevada side, the side that will receive the highest proportion of impacts from the HHSEGS construction.

This also does not include the cumulative impacts to this portion of the road resulting from the transmission lines or the gas pipeline coming from Nevada that will result in even more “severe truck traffic loads.”

While the CEC will be responsible for authorizing the HHSEGS, if they authorize it, Nevada will be forced to also reconstruct or repave the Nevada portion of the Tecopa Road due to the significant damage it will receive as well as coordinate emergency services due to the increased vehicular accidents that will result.

Finally, Inyo County mentions the seasonal increase in vehicle traffic the Tecopa Road receives due to “Dumont Dunes”, which attract R.V.’s, toy haulers, atv’s and trailers carrying various recreational vehicles. Given the difficulty of maneuvering these large vehicles around the high volume of oversized vehicles during construction, even greater risks to public safety will occur. It may also impact future Dumont Dune travel as those who are caught in the construction activities may choose different recreational locations due to hazards and delays.

The bottom line is: ***this road CANNOT handle this kind of traffic in its current condition, on either the Nevada or California side.***

It must be made wider and the pavement needs to be able to withstand the kind of weight and volume of traffic the construction of the HHSEGS will cause. Failure to do so will result in significantly increased dangers to the public who are not be shielded from vehicular impacts like semi-trucks are nor will they be able to receive fast emergency medical response if they are injured in these remote locations.

The applicants' determination of "No Impact" regarding traffic resulting from the HHSEGS's construction is invalid.

Questions

1. What authority does California have or agreements can it make with the Nevada Department of Transportation to fully reconstruct the Tecopa Road from SR160 to the HHSEGS project site?
2. What is the estimated time and cost of fully reconstructing the Tecopa Road from SR160 to the HHSEGS project site on the Nevada side?
3. What are the estimated environmental impacts and emissions that would result from fully reconstructing the 11-mile stretch of the Tecopa Road on the Nevada side and the 30.1 miles of the Tecopa Road on the California side?
4. What is the emergency medical response time from the Nevada side of the Tecopa Road in the event of vehicular collisions and injuries?
5. The applicant is continuously referencing the need to complete the Application For Certification in an expedited manner due to financial/investor obligations. However, pre-construction road reconstruction may affect the HHSEGS construction and operational timetable. Is the applicant capable of financially withstanding potential delays due to the road reconstruction necessary to insure public safety?
6. Will the CEC sacrifice public safety to appease the applicants' financial/investor obligations and/or renewable energy quotas?

Recommendations

- Determine if Nevada is willing or capable of providing infrastructure support and emergency responses on the Tecopa Road in the event the HHSEGS is approved.

- Currently available data regarding significant direct, indirect and cumulative impacts is inadequate as it still excludes the Nevada portion of the Tecopa Road. Request assessments from Nevada regarding road reconstruction that must be done prior to commencement of the HHSEGS construction phase. This should include estimated time, cost and environmental impacts (such as emissions). It should also include information regarding emergency medial response options and time factors for vehicular injuries resulting from the high volume of traffic in both “worse-case scenarios” (without reconstruction and widening) and “best-case scenarios” (post-road reconstruction).
- Describe what measures the CEC will require as a condition of the permit that mitigate both significantly increased hazards to public safety on the Tecopa Road (both California and Nevada side) as well as pavement damage resulting from high volumes of semi-trucks and oversized vehicles if roadways aren’t reconstructed to handle impacts of the HHSEGS.

2. PUBLIC & ENVIRONMENTAL SAFETY: CELL PHONE TOWER

Background

In 2012-02-22, the CEC received a letter from Inyo County regarding Socio-Economic Impacts of the HHSEGS. In it, a letter dated 12/15/11, from Brandon Shults, Inyo County Director of Information Services states:

“My understanding is that the project will construct a cellular communications tower near the project site”

Comments

There is a growing body of scientific literature, studies and evidence suggesting significant adverse affects on biological organisms as a direct result of cell phone use and cell phone tower radiation. Without a doubt, scientific opinion is split; several studies discredit any concerns regarding RF exposure being linked to adverse human and environmental health affects and several studies provide evidence of the opposite.

However, what is abundantly clear *on both sides of the debate* is, they are all in agreement that not enough is known to definitively address these concerns or establish clear safety standards. As a result, today even the World Health Organization and the American Cancer Society (who both favor the side of “non-hazardous” affects) have issued precautionary steps to avoid possible short and long-term affects until more is known about the potential dangers and impacts due to the volume of studies being produced regarding documented adverse affects on multiple biological sources.

What is being called for throughout the scientific and medical community is the adoption of the Precautionary Principle, which shifts the burden of proof from those suspecting a risk to those who discount it.

Human Risks

Since 2009, over 43 scientists have signed "[The Porto Alegre Resolution](#)", which outlines deep concern regarding emerging data supporting adverse health effects to humans and the environment. This includes the embrace of the Precautionary Principle as well as providing strongly recommended precautionary practices.

Some of the scientific studies supporting adverse human health affects attributed to cell phone towers include:

["Biological Effects From Exposure To Electromagnetic Radiation Emitted By Cell Tower Base Stations And Other Antenna Arrays"](#), B. Levitt, H. Lai, Environmental Reviews, published on the National Research Council website 11/5/10.

["Epidemiological Evidence For A Health Risk From Mobile Phone Base Stations"](#), V. Khurana *et al.*, Int J Occup Environ Health 2010: 16:263-267.

["Mobile Phone Base Stations And Adverse Health Effects: Phase 1 Of A Population-Based, Cross-Sectional Study In Germany"](#), M. Blettner *et. al.*, Occup Environ Med, 2009 Feb, 66(2); 118-23, Epub 2008 Nov. 18.

["Neurobehavioral Effects Among Inhabitants Around Mobile Phone Base Stations"](#), G. Abdel-Rassoul *et. al.*, Neurotoxicology, 2007 March; 28(2); 434-40, Epub 2006 Aug. 1.

["Subjective Symptoms, Sleeping Problems, And Cognitive Performance In Subjects Living Near Mobile Phone Base Stations"](#), HP Hutter *et. al.*, Occup Environ Med, 2006 May; 63(5); 307-13.

["The Influence of Being Physically Near To A Cell Phone Transmission Mast On The Incident of Cancer"](#), H. Eger *et al.*, Umwelt-Medizin-Gesellschaft 4/17/04.

["Increased Incidence Of Cancer Near A Cell-Phone Transmitter Station"](#), R. Wolf, MD and D. Wolf, MD, International Journal of Cancer Prevention, Volume 1, Number 2, April 2004.

["Study Of The Health Of People Living In The Vicinity Of Mobile Phone Base Stations"](#), R. Santini *et. al.*, Pathol Biol 2002; 50 : 369-73.

["Summary: 10 Out Of 14 Peer-Reviewed Studies On Base Stations Found Significant Increases In Symptoms And Conform To WHO Standards Of Scientific Quality"](#)

The article, "[Health Effects From Cell Phone Tower Radiation](#)" claims, "*Over 100 physicians and scientists at Harvard and Boston University Schools of Public Health have called cellular towers a radiation hazard.*" It also states that the California Public Utility Commission has urged the cell phone industry to not locate towers near schools or hospitals.

Regarding concerns over public health risks resulting from cell phone tower [exposure](#), the American Cancer Society recommends “...measure[ing] the RF field strength near the tower to ensure that is within the acceptable range.”

Another article regarding public health and environmental risks regarding cell phones and towers, “[Science & Research: Health Effects](#)”, provides a great deal of links to research, studies, articles, news coverage, government agency testimony, guidelines and standards, both in the U.S. and abroad. It also includes quotes from a [letter](#) from the EPA, Center for Science and Risk Assessment, Radiation Protection Division, (July 2002), which states, “*The FCC’s exposure guideline is considered protective of effects arising from a thermal mechanism but not for all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.*” (Emphasis added.)

In “[Health and Environmental Concerns Regarding Mobile Phone Base Stations \(Cell Towers\)](#)”, the authors state, “*This document summarizes the increasing recognition of the potential health risks of cell towers from governments and scientists worldwide. While the issue of health concerns is considered to be controversial, much of this controversy is manufactured by key stakeholders and industry lobbyists. There has been a body of scientific evidence on the dangers of microwave technologies, since a decade ago, and many governments are only beginning to take action.*”

Wildlife Risks

Growing concerns regarding electromagnetic pollution and RF radiation are not limited to human health risks and may be significantly affecting the environment as a whole.

On May 10, 2007, Albert m. Manville, II, Ph.D., Senior Wildlife Biologist, Division of Migratory Bird Management, US Fish and Wildlife Service, submitted a presentation titled, “[U.S. Fish & Wildlife Concerns Over Potential Radiation Impacts of Cellular Communications Towers on Migratory Birds and Other Wildlife – Research Opportunities](#)” for a Congressional Staff Briefing on the Environmental and Human Health Effects of Radiofrequency (RF) Radiation”, House Capitol 5. Washington, DC.

Bullet point summaries and significant concerns are raised from USFWS including impacts to birds, bats and insects - especially bees.

Direct effects of individual towers and antenna “farms” include: bird and bat strike mortality, direct habitat loss/modification, interior forest, grassland habitat loss, habitat fragmentation/increase in edge, increase in nest parasitism and predation, and water quality impacts.

Indirect effects include: reduced nesting/breeding density, loss population vigor and overall density, habitat and site abandonment, increased isolation b/w patches, loss of refugia, effects on predator/prey relationships, attraction to modified habitats, effects on behavior including stress, interruption, modification and disturbance, avoidance, displacement, and habitat unsuitability.

One study was cited that reported (1) nest and site abandonment, (2) plumage deterioration, (3) locomotion problems, and (4) deaths among species found close to cellular phone antennas in the House Sparrow, White Stork, Rock Dove, Magpie, Collared Dove and other species.

There are other significant issues also presented, which include possible links of Colony Collapse Disorder for bee colony's, a control site in Massachusetts that found wildlife presence in the vicinity of the cell phone towers was significantly reduced and/or abandoned despite abundant and available food, as well as potential economic impacts from species reductions and/or loss.

Though the subject of cell phone tower impacts to wildlife is even more of an unknown than humans, some studies include:

[“Electromagnetic Pollution From Phone Masts. Effects On Wildlife”](#), A. Balmori, Pathophysiology (2009), doi;10.1016/j.pathophys.2009.01.007.

[“Possible Effects of Electromagnetic Fields From Phone Masts on a Population of White Stork”](#), A. Balmori, Electromagnetic Biology and Medicine, 24; 109-119, 2005.

[“The Incidence of Electromagnetic Pollution on the Amphibian Decline: Is This An Important Piece of the Puzzle?”](#), A. Balmori, Toxicological and Environmental Chemistry, Apr-June 2006: 88(2): 287-299.

Conclusion

Because of the growing body of evidence and concern regarding adverse effects on human health and the environment, the placement of a cell phone tower at the HHSEGS – or whether there is a sufficient need to establish one at all – should not be excluded from analysis, discussions or public review.

As it currently stands, CEC review of what may be a significant public health hazard to the community and affected environment is proceeding without question, information, disclosure, adequate data or potential mitigation measures.

Questions

1. Where is the location of the cell phone tower currently planned and are there alternative sites that may reduce public health and/or environmental risks?
2. Given the small population of the area, lack of infrastructure, wildlife values and remote nature of HHSEGS project site, what is the actual need for a cell phone tower – outside of supplying the owner/operator with a regular check for leasing space by the cell phone industry?
3. In addition to human health risks, has the CEC and/or Staff explored potential impacts of a cell phone tower to wildlife in the area, with special attention to birds, bats and insects?

Recommendations

- Provide an analysis that weighs the potential pro's and con's regarding the addition of a cell phone tower to the area in relation to potential and significant adverse impacts to human health and the surrounding environment.
- Disclose currently planned cell phone tower placement and discuss alternative sites that attempt to mitigate potential harmful short and long term affects to the public, wildlife and the environment.
- As a condition of the permit, require measuring the RF field strength near the tower to ensure that is within the acceptable range and/or consider adopting international standards as they are all lower than the currently adopted U.S. standards.

SOCIO-ECONOMICS

“There is little or no correlation between proximity of industrial plants and employment opportunities of nearby residents. Having industrial facilities in one's community does not automatically translate into jobs for nearby residents. Many industrial plants are located at the fence line with the communities. Some are so close that local residents could walk to work. More often than not, poor are stuck with the pollution and poverty, while other people commute in for the industrial jobs.”

*“Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities”
A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.*

SOCIO-ECONOMICS

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1. OPERATIONAL WORKFORCE

Background

In Section 5.10, Socio-Economics, pp. 28, the applicant states:

“HHSEGS will provide about \$15.65 million (in 2011 dollars) in operational payroll, at an average salary of \$130,435 per year (including benefits) for the assumed 120 full-time employees. There will be an annual operations and maintenance budget of approximately \$0.54 million (in 2011 dollars), 5 percent of which is assumed to be spent within Inyo County while the remaining 95 percent is assumed to be spent within the two-county region.” (Emphasis added.)

In Table 5.10-22, Operational Workforce by Shift and Work Area, pp. 28, the applicant provides a breakdown of employees per area.

TABLE 5.10-22				
<u>Operational Workforce by Shift and Work Area</u>				
	Solar Plant 1	Solar Plant 2	Admin Bldg	Total
Day shift	—	—	40	40
Night Shift	36	36	8	80
TOTAL				120

Comments

One of the applicants’ big selling points to government agencies, the local communities surrounding the HHSEGS project site and the media has been its creation of “jobs”. While the jobs created by the construction workforce is certainly viable, these jobs are short-term in nature and play no significant role in long-term job creation for the area.

The applicants’ display of the greatly reduced operational workforce as shown in Table 5.10-22 indicates that the majority of workers at the Solar Plants will be mirror washers, a potentially low skilled and non-union job.

The applicant provides a salary analysis of the projected wages of its workers by only providing “averages” of all employees, including administrators and potentially “owners/others”, as these positions were included in Appendix 5.1F, Construction Emissions Analysis, pp. 14.

Questions

1. What is the specific wage breakdown per worker class (i.e., mirror washers) during the operational phase of the HHSEGS?
2. Does the average wage provided by the applicant include “owner/other” pay rates? Also, what are the definitions and contributions of “other” positions?
3. Will the mirror washing positions require union or non-union staff?
4. How many of the projected operational workforce will be comprised of union positions?

Recommendations

- Provide a detailed analysis of specific worker class required for the operation of the HHSEGS, including but not limited to: actual wage per position, separate wages from benefits, all types of positions required, and what positions will be union or non-union in order to determine long-term economic impacts via job creation of the project.

2. TAXES: REVENUE AND COSTS

Background

In Section 1, Executive Summary, pp. 11, the applicant states:

*“Assuming the property tax exemptions apply, Inyo County would receive about \$3.9 million annually in property taxes. This additional property tax revenue would constitute an almost 23 percent increase in the total county taxes received over fiscal year 2010 amounts. As such, the additional property tax revenues generated by the HHSEGS would **significantly benefit** Inyo County.”*

In a letter from Inyo County titled Socio-Economic Impacts to Inyo County dated February 16, 2012, the County Administrative Office states (pp.5):

“....the costs to the County greatly exceed the increased property taxes that the County will receive due to the construction of the project (approximately \$300,000 per year according to the AFC) and the taxes are insufficient to support needed local improvements and services required to serve the project.” (Emphasis added.)

Comments

I was unable to locate the source of Inyo County’s projected increase of property taxes at approximately \$300,000 p/year in the AFC files. However, the two statements indicate significant discrepancies between projected tax revenues resulting from the construction and operation of the HHSEGS and these discrepancies should be clarified and/or resolved.

Though Inyo County states the costs to the County greatly exceed the increased property taxes that the County will receive, they also state the cost estimates are preliminary because the information the County has received to date about the construction and operation of the proposed project is not complete.

With respect to the applicant's projected property tax of \$3.9 million dollars annually, it assumes property tax exemptions apply but no further discussion or description of what exemptions the applicant assumed, what the difference would be in property taxes without these exemptions, what the current amount of property taxes the County is currently receiving for the property, how the property tax status would change, or what the net loss to the County will be because the HHSEGS qualifies for these property tax exemptions versus other kinds of development that may result in significant increases in revenue to the county.

Additionally, to date neither the applicant, the CEC or the County have provided any information, discussions, analysis or details regarding the introduction of the HHSEGS to the area to local landowners. We don't know how it will affect our property taxes annually or over the life of the project, if the local improvements and services required to serve the HHSEGS project will cause an increase in current property owners taxes and if so, by how much, or what portion – if any – of the taxes received from the HHSEGS will be required to be reinvested into the community of Charleston View.

At the January CEC Workshop in Tecopa, Brian Brown raised questions to CEC Staff regarding the tax status, exemptions, etc. of the HHSEGS. I also asked tax questions in relation to impacts to local property owners. Afterwards, an Inyo County official came to me and briefly spoke regarding my concerns. The bottom line of the conversation was; California has a 1% annual cap on property taxes and no landowners will be required to pay for the HHSEGS – but I haven't seen that in writing nor have I seen any analysis of what the reasonably foreseeable impacts to local landowners might be.

What I do know for sure is, when Inyo County instituted a fire response system for the area, it showed up as a separate payment on my property bill and I've been paying for it ever since.

Questions

1. What are the property tax exemptions the applicant assumed when calculating the projected revenue of \$3.9 million annually to Inyo County?
2. What would be the difference in property tax revenue generated without these exemptions?
3. What was the amount of property taxes the County received in 2010 for the property that the HHSEGS will be leasing?

4. What is the potential net revenue loss to the County because of the HHSEGS's property tax exemptions versus other kinds of development that may result in significant increases in revenue?
5. Where is the \$300,000 annual tax revenue referenced by Inyo County in the AFC files or did Inyo County calculate this revenue by merely basing it on information found in the AFC files?
6. If Inyo County has already concluded through preliminary estimates that the cost of the HHSEGS project to the County will greatly exceed the revenue it generates, how much more significant will the gap between costs and revenue increase once completed data is available?
7. Since the CEC has sole jurisdiction regarding the authorization of the HHSEGS, will they require completed data and insure a reasonable cost analysis will be provided and analyzed prior to issuing a decision?
8. Since the CEC is aware the County estimates the costs incurred by the proposed project will significantly exceed the revenue the project will generate, has the CEC worked to develop alternative funding for the County? If so, what support and financial commitments can the CEC organize and authorize to assist Inyo County in meeting their obligations in the event the HHSEGS is approved?
9. If the HHSEGS is approved, what are the projected impacts to local landowners with respect to their property taxes on an annual basis and over the life of the project?
10. How will the wide variety of infrastructure, services and support necessary for the construction and operation of the HHSEGS affect local landowners, directly, indirectly and cumulatively over the life of the project?
11. Will there be any restrictions, limitations or conditions of the permit that will prevent local landowners from being financially burdened as a result of the construction and operation of the HHSEGS project?

Recommendations

- The applicant should be required to submit a reasonable assessment of how they derived their projected annual tax revenues to Inyo County, including a description of the assumed property tax exemptions applied.
- The discrepancies between the applicants' assessments and Inyo County's assessments should be clarified and/or resolved.
- A reasonable analysis of alternative developments to the HHSEGS site should be incorporated and reviewed to discern the differences in tax revenue generation to Inyo County and potential losses/gains if the HHSEGS is approved.

- The applicant and Inyo County need to develop a reasonable assessment of costs to the County based on complete information, not preliminary information, to complete and maintain the project over its lifetime prior to issuing a decision.
- Based on the cost assessment developed by the applicant and the County referenced above, the CEC should provide information as to what forms of financial assistance will be made available to the County to insure appropriate oversight, infrastructure needs and other requirements are capable of being met prior to issuing a decision.
- Adequate data, information, discussion and analysis regarding the HHSEGS's impacts to local property owners' taxes should be disclosed and included in the CEC review.

3. QUALIFICATIONS: RENEWABLE ENERGY CREDITS

Background

In Section 1, Executive Summary, pp. 4, the applicant outlines the project objectives. It includes:

"To generate renewable electricity that will be qualified as meeting the RPS requirements of the CEC, California Public Utility Commission, and the Western Renewable Energy Generation Information System program for tradable renewable energy credits."

Comments

The applicant has provided little to no detailed data describing how the HHSEGS will qualify for these requirements.

After reviewing the Western Renewable Energy Generation Information System [Operating Rules](#), at minimum, certain basic information pertaining to the HHSEGS projects qualifications should be publicly disclosed and incorporated in the CEC review process.

One of the safeguards incorporated in WREGIS is a *"production data validity check, in order to assure that erroneous and technically infeasible data is not entered into WREGIS. The data validity check will compare reported electricity production.....to an engineering estimate of maximum potential production, calculated as a function of associated capacity factor or maximum annual capacity...."*

Additionally, in order to qualify for registration with WREGIS, a report prepared by a Licensed Professional Engineer containing documentation of a methodology for calculating the electricity production associated with each fuel use must be submitted.

Questions

1. What WREGIS energy production classification (A-J) will the HHSEGS qualify for?
2. Will the HHSEGS report to a Balancing Authority?
3. How often will the HHSEGS be required to report its total net electricity production to WREGIS, monthly or annually?
4. Will the HHSEGS have a revenue-quality meter that meets the minimum ANSI C-12 standard or its equivalent? If it is an equivalent standard, who will be the responsible regulator/administer?
5. Will the HHSEGS and/or program administrators apply for or be eligible for exceptions to the ANSI C-12 standard?
6. Will the HHSEGS have two separate meters, one to meter the on-site load and one to meter generation that is supplied to the grid?
7. How will the HHSEGS meet the WREGIS requirement for “multi-fuel generating units” of relative quantities of electricity production that can be measured or calculated, and verified?
8. What is the methodology used by the applicant for projecting the calculation of electricity production associated with each fuel use? Does the applicants’ methodology conform to the professional engineering standards required by WREGIS?
9. How will the HHSEGS report the proportion of electric output per fuel type (i.e., solar or natural gas)?
10. Has the CEC, Staff, WREGIS or any other agency or entity conducted an independent engineering estimate of the HHSEGS maximum potential production based on the available data to determine if the HHSEGS can credibly qualify for meeting renewable energy requirements?
11. Will the HHSEGS be defined as a “*demonstration project...to demonstrate new technology or new applications of existing technologies*”?

Recommendations

- Since achieving renewable standards is a significant project objective for both the applicant and the state of California, at minimum, basic information pertaining to how the HHSEGS will qualify and achieve these objectives must be publicly disclosed and incorporated in the review process.

4. REASONABLE COSTS: PUBLIC DISCLOSURE

Background

In the HHSEGS Executive Summary, pp. 5, the applicant states:

“Economic Viability—Project needs to be economically viable and competitive with other renewable technologies including wind, geothermal, and solar. The site should be located on property currently available at a reasonable cost, have reasonable proximity to infrastructure and have good solarity. Sites with excellent solarity may be able to carry higher mitigation costs or infrastructure costs.”

Comments

Setting aside the fact that the proposed HHSEGS project site does not have reasonable proximity to infrastructure – questionable water sources and/or supply, no waste management systems, no waste or hazardous materials disposal sites, no viable transmission lines capable of supporting the project, no reasonable emergency or medical access, no gas pipeline access and no adequate roadways – the assertion that the project site has been obtained at “reasonable costs” is completely unverified and unsubstantiated.

Due to a lack of transparency regarding the terms of the lease, it is not known if the currently proposed HHSEGS site meets the goal of attaining the project site at “reasonable costs”. In fact, one of my concerns is the fact that the property will be leased during the life of the project. This in turn means the financial obligations of the lease will be inherently incorporated into the end cost of the electrical output, which in turn will ultimately be borne by the consumer. Yet, no disclosure of this cost or any other cost is required?

The terms of the lease(s) necessary to facilitate this project should be subject to public disclosure since renewable energy is receiving a multitude of federal and state subsidies, tax advantages and other public goods and services.

Furthermore, all these advantages are being made available to renewable energy projects based on the foundation that it serves the public interest. What we have to pay for “our interests” should not be confidential when its impacts will both directly and indirectly affect both taxpayers across the nation as well as all consumers forced to ultimately pay for the electricity that is generated.

With respect to the applicants’ assertion that the generation of the electricity produced at the HHSEGS site must *“be economically viable and competitive with other renewable technologies including wind, geothermal, and solar”*, again there is absolutely zero information provided to the CEC or the public regarding its “economic viability”, how its costs compare with other renewable technology or what the direct, indirect and cumulative costs of its electrical generation will be to the taxpayer and/or consumer - either immediately after its completion or over the life of the project.

According to the Los Angeles Times article, ["Mojave Solar-Power Project Sacrifices The Desert For The Earth"](#), which devotes itself to describing Bright Source's Ivanpah plant, the cost of solar energy is a serious and significant issue as outlined by the quotes below.

"Capturing a free and clean source of energy is not cheap. Solar is the Cadillac of energy, with capitol costs and other market factors making it three times more expensive than natural gas or coal." (Emphasis added.)

"Ratepayers' bills will be up to 50 percent higher for renewable energy, according to an analysis from the consumer advocate branch of the state Public Utilities Commission." (Emphasis added.)

"By taking advantage of the available government subsidies, shrewd solar developers can get taxpayers to cover close to 80 percent of a multibillion-dollar project. The rest comes from investors, attracted by what amounts to a tax shelter." (Emphasis added.)

The CEC, acting on behalf of the people of the State of California, is authorized to commit to a legally binding contract of 25-30 years in our name in order to "serve the public interest". But as it stands, the "public" is being circumvented by providing little to no information, data or analysis of what the truly significant financial impacts of approving the construction and operation of the HHSEGS will be.

No one in their right mind would sign a contract of this magnitude without a serious financial analysis of its costs, debts, obligations and potential returns. Yet, this is exactly what the CEC is so far proposing to do – to force the public to financially commit for up to three decades to a project that has so far failed to produce even a marginal financial cost disclosure or analysis, much less a reasonable one.

By way of comparison, this could be considered the equivalent of an outside company taking a mortgage out in my name and even though I'm aware of it and legally bound by it, I am not allowed any disclosure of the terms. Because of this, the company is able to sign the contract without revealing the price of the home, the amount of interest I will pay, what my payment schedule will be, what the costs will be over the life of the mortgage or any other limitations, restrictions or terms they want to throw into the agreement.

The people have seen enough of these kinds of undisclosed and unrestricted giveaways. The first National \$700 billion dollar bailout to the banks and investment community was given without any real knowledge of what the money was for nor were any restrictions or rules for its dispersal included in the terms. Months later, the nation is "outraged" because millions of dollars were used to pay bonuses and other perks to industry leaders, even though they essentially bankrupted our economic system – through previously committing wide spread fraud against the very people who were then forced to bail them out!

Questions

1. What are the terms of the lease agreement for the HHSEGS project site and explain how they are “reasonable”?
2. How much will the monthly/annual lease payment be and how much of that cost will impact the total production costs of the end electrical product annually and per kilowatt?
3. Are the terms of the lease subject to renegotiation during the life of the HHSEGS project (i.e., can they go up)?
4. What taxpayer/publicly-funded programs will the HHSEGS be eligible for on both the state and federal levels?
5. What is the potential total amount of money that the HHSEGS project will be eligible to receive through taxpayer/publicly-funded programs – on both the state and federal levels – during its construction? Operation? Over the life of the project?
6. What is the potential short and long-term costs to taxpayers resulting from publicly-funded programs that may apply to the HHSEGS – on both the state and federal levels?
7. What is the cost comparison between what the county, state and federal government will receive as a result of the authorization of the HHSEGS project in relation to what it will cost these same agencies during its construction, operation and over the life of the project?
8. Once the HHSEGS is operational and by applying all government subsidies, tax incentives and write offs, renewable energy programs, etc. the it may be eligible for, what does the applicant project the cost of the electricity would be per kilowatt on the wholesale market at today’s prices? Adjusted for inflation over the life of the project?
9. If the applicant received no taxpayer/public funding on any level, what does the applicant project the cost of the electricity would be per kilowatt on the wholesale market? Adjusted for inflation over the life of the project?
10. How does the cost of the electricity produced at the HHSEGS project site compare to the costs of electricity produced by other renewables such as wind, geothermal, solar and Bloom Energy Servers at today’s prices?
11. What is the projected end cost to consumers exclusively of the electricity generated by the HHSEGS per kilowatt? Adjusted for inflation over the life of the project?
12. If the HHSEGS fails to perform or produce electricity at a reasonable rate within the parameters of its “renewable requirements” at any time over the life of the project, will the public have the right to revoke their financial and legal obligations? If so, explain how?

13. Will the authorization of the HHSEGS contain any financial limitations, restrictions, or terms regarding costs? Production or performance levels? Renewable standards?

Recommendations

- Disclose and submit into the public record the terms of the lease between the owner(s) of the HHSEGS project site and the applicant, including the lease costs, whether these costs can go up over the life of the project and how this may affect the cost of electrical generation per kilowatt.
- Require a reasonable financial analysis and public disclosure relative to all phases of the HHSEGS project, including but not limited to; state and federal taxpayer/publicly funded programs the HHSEGS may be eligible for, the projected costs to taxpayers/public of these programs, how much of the HHSEGS will be taxpayer funded versus investor funded, how much revenue all impacted government agency's will receive versus required expenditures to construct and oversee the operation of the HHSEGS, how the costs of electricity generated by the HHSEGS compares with other renewable energy production, what the production and performance levels of the HHSEGS are expected to be in terms of cost and electrical output a) with taxpayer/public funding and b) without to determine market competitiveness - both annually and over the life of the project, as well as cost analysis of electricity produced by the HHSEGS per kilowatt at today's prices on the wholesale markets, to the end consumer and adjusted for inflation over the life of the project.
- Disclose and submit into the public record the terms of the currently proposed contract between the people of California as negotiated by the CEC and Bright Source for its energy production at the HHSEGS. Once the financial and legal terms of the contract are publicly disclosed, include opportunities for discussions and analysis of any restrictions, limitations, or conditions of the permit that may be incorporated or are deemed necessary to protect the public interests over the life of the project.

5. FINANCIAL SOLVENCY

Background

On June 9, 2011, Bright Source Energy, Inc. stated in Amendment No. 2 to Form S-1 [Registration Statement](#) to the U.S. Securities and Exchange Commission, that:

"In 2010, Ivanpah and Chevron represented the vast majority of our revenue."

Comments

The fact that Bright Source is reporting the vast majority of their revenue is represented by these two projects is disconcerting, to say the least, and here's why.

Ivanpah has yet to produce any product whatsoever as it is still being constructed. Therefore, the referenced revenue generated can only be through investors and/or loans.

With respect to the Chevron project in Coalinga, Reuters reported on June 9, 2011, that "[Bright Source – Chevron Project Incurs Heavy Losses](#), *Bright Source Has Booked Losses of \$40.2 million For Project*". The cost overruns are blamed on design and engineering changes.

In the article, "[Chevron Bright Source Solar-To-Steam Demonstration Plant Trials Underway](#)" (8/21/11), a brief financial analysis of Bright Sources cost overruns cite the original Chevron contract was for \$27.7 million but due to cost overruns of \$40.2 million, the cost to date was \$67.9 million - and this price tag may be even higher at final completion. It also discussed potential cost overrun of Ivanpah was budgeted at merely \$66.5 million even though the Ivanpah project is almost 40.6 times larger than the Chevron Coalinga project.

In other words, it appears that Bright Source isn't really generating any revenue and may be primarily subsisting on investor capital, government subsidies and/or loans.

Questions

1. What are the cost overruns at the Chevron Coalinga project to date?
2. What are the cost overruns (if any) of the Ivanpah project to date?
3. What will Bright Source budget for cost overruns at the HHSEGS project site?
4. What is Bright Sources current debt ratio?
5. Is Bright Source currently financially solvent enough to finance the projected \$2.7 billion dollar HHSEGS project or will it require additional investors?
6. Will Bright Source have to incur more debt/loans to construct and/or operate the HHSEGS? If so, what is the projected amount of loans necessary to complete the project?
7. Who is responsible for insuring that Bright Source is capable of meeting its financial obligations once the construction of the HHSEGS has commenced?

Recommendations

- Require financial disclosure of the applicants' ability to fund the HHSEGS and insure the applicant has adequate funding to complete the construction of the HHSEGS – including potentially significant cost overruns – as well as its operational phase. This should also include review of the company's leverage/debt ratio to determine if they are within reasonable bounds of sound accounting standards.

6. ACCOUNTING PRACTICES

Background

The following quotes were taken from Bright Source Energy's Amendment No. 2 filed on June 9, 2011, with the Security Exchange Commission.

"Our project companies for electricity generation projects qualify as exempt wholesale generators, or EWGs, through the self-certification procedures contained in FERC regulations. EWGs are entities that engage exclusively in the business of owning generating facilities selling the resulting electric energy products in wholesale markets, and thus qualify for exemption from FERC's books and records regulations under the Public Utility Holding Company Act of 2005. Our electricity generation project companies will sell electric capacity, energy and ancillary services at market-based rates upon application for, and receipt of, authority granted by FERC." (Emphasis added).

"A change in these accounting standards or the questioning of current reporting practices may adversely affect our reported financial results or the way we conduct our business." (Emphasis added.)

"In addition, by providing energy during peak demand when utilities are willing to pay the highest price, electric power plants using our systems are able to maximize the revenue realized from the sale of electricity."

Comments

Bright Sources funding is highly confidential. Their liability is limited. They are exempt from FERC's books and records regulations. If questions arise regarding their current reporting practices, it may adversely affect their reported financial results or even change they way they conduct business. They also tout how they are able to maximize revenue for those who use their system. How is this not another Enron in the making or even remotely in the public interest?

Questions

1. Has the CEC, Staff or any other agency reviewed the methods and accounting practices of Bright Source or its partners within the last two years?
2. If Bright Source is exempt from FERC's books and records regulations, what standards and records regulations are they subject too and who will be overseeing their accounting practices?

Recommendations

- Review Bright Source's current accounting practices to determine if potential irregularities or fraudulent activity is possible during the construction, operation or over the life of the HHSEGS project if it is approved.

- Prior to approval of the Bright Sources application, review any California laws that may be applicable towards predatory energy practices to determine if their stated financial practices and/or goals may be questionable or in possible violation of accounting standards or laws.
- As a condition of the permit, insure the public is protected from predatory practices from a) accounting methods and/or standards, b) exemptions from FERC's books and records regulations, c) changes they may make in how they conduct business in the event questions arise regarding their current reporting practices, d) maximization of revenue through the electricity generated, e) consumer protection from purchasing end products.

7. BACKGROUND CHECKS: PROTECTING THE PUBLIC INTEREST

Background

In the 2011-11-03, Hidden Hills, CEC Transcript Informational Hearing on Hidden Hills, pp. 138, Bright Sources Senior Project Director Clay Jensen stated,

"How we finance our project is very confidential."

In Appendix 1A, the applicant provides a list of landowners within a 1,000 feet of the HHSEGS project site.

Comments

In reviewing the list of landowners in context with Mr. Jensen's statement, I had the following observations.

A) Secret Partners/Subversive Organizations

The majority of all the landowners surrounding the project site came from the same address; 612 S. 7th Street, Las Vegas, NV, 89119, despite a variety of different names associated with it, such as "Section 20, LLC".

In attempting to research what kind of corporation "Section 20, LLC" might be, I could find not reference of its company status online. However, I was surprised to find the most common hit on Google referred to Section 20 as rules pertaining to how individuals or persons can acquire limited liability status under assumed names. Another interesting link was Section 20 of the Securities Act of 1933 – Injunctions and Prosecution of Offenses. However, it is painfully obvious that I can "guess" all day long in trying to determine who Bright Sources secret partners are - but that's not going to answer the questions, will it?

As I've contemplated the shroud of limited liability corporations who are descending on the area and Bright Source openly acknowledging the source of their funding is "highly confidential", questions such as, "What if they have been connected to fraud?", "What if they are known for human rights violations or environmental damage?" "What if they have connections to terrorism?", etc. But again, who knows?

This has led me to wonder, who has more rights - the corporations or the people? Is protecting corporate privacy more important than protecting the public's right to know?

It turns out, the state of California has also shared some of my concerns. The California Codes for Corporations, Section 35000, Subversive Organizations, states in part:

"35001. This title is enacted in the exercise of the police power of this State for the protection of the public peace and safety by requiring the registration of subversive organizations which are conceived and exist for the purpose of undermining and eventually destroying the democratic form of government in this State and in the United States. (Emphasis added).

Section 35000, Subversive Organization, also includes any corporation if:

(a) It solicits or accepts financial contributions, loans, or support of any kind directly or indirectly from, or is affiliated directly or indirectly with, a foreign government or a political subdivision thereof, an agent, agency, or instrumentality of a foreign government or political subdivision thereof, a political party in a foreign country, or an international political organization.

(b) Its policies, or any of them, are determined by or at the suggestion of, or in collaboration with, a foreign government or political subdivision thereof, an agent, agency, or instrumentality of a foreign government or a political subdivision thereof, a political party in a foreign country, or an international political organization.

I interpret this to mean a democratic form of government is defined as, "of, by and for the people" and the public has the right to know who is behind the Section 20, LLC., who is financing the project, what their financial and political connections are and can they be linked to questionable, illegal or subversive activities either in the United States or abroad.

(B) The second observation was how the Golden Ridge Corporation was periodically scattered throughout the landowner list surrounding the Hidden Hills project site as well. Turns out, the only online information I could find regarding The Golden Ridge Corporation was found on St. Theresa Missions website and was advertised as "*a land investments firm founded in 1995 in Los Angeles, California. Its holdings are centered on the booming areas of Las Vegas and Pahrump Valley area in Nevada with over 700 million pesos worth of land inventory*".

Despite the St. Theresa Mission being affiliated with the Golden Ridges Corporations, the real estate company that will be developing it is Magnificat Ventures Corporation (MVC). MVC's company profile found [here](#) states they are a foreign corporation whose qualifying state is California with a registered agent's address in Las Vegas, Nevada. The President, Treasurer, Secretary and Director are all members of the Dizon family registered to a Henderson, NV address. It filed for incorporation in Nevada less than a ago and lists a Capital Amount of \$2,000 dollars.

MVC is also advertised as *“part of a number of companies that form a concentric conglomerate known as the 7R Group of Companies, owned and run by the Dizon Family in the Philippines. It has investments in various industries in the Philippines and abroad.”*

According to the Inyo County Planning Department’s Staff Report regarding St. Theresa Mission Conditional Permit dated June 23, 2010, the landowners were listed as “various” and included Wiley Trust, Bailon Trust, and Lynn Fernando. It went on to add *“they are in the process of transferring ownership to Magnificat Ventures Corporation.”*

What is also interesting to note is, during the CEC workshop in January at Tecopa, a man stating he was a community outreach coordinator for St. Theresa introduced himself to me and we spent a small amount of time chatting. Here, he claimed the Dizon family had owned the St. Theresa Mission property for many years - but according to the Inyo County Staff Report, neither the Dizon family, the Golden Ridge Corporation, or the 7R Group of Companies were listed in the landowner information portion of the application for the St. Theresa Mission site.

C) Unequal Treatment: The Public’s Right To Know

The last time I received a drivers’ license, a thorough background check was conducted on me before I was allowed to legally drive again. My job also performed an extensive background check before I was hired. If I fly in an airplane, a background check is conducted. Even Bright Source states that anyone hired for the HHSEGS will also be required to submit to an extensive background check.

It is only fair that the public be treated equally by requiring full disclosure and history of everyone associated with the HHSEGS project as well as who is financing the HHSEGS project – and this includes St. Theresa Mission as they had listed some of the same owners as those currently associated with the HHSEGS.

It is not fair, equal, just or democratic to force the general population to submit to such high scrutiny and security standards for the most common, everyday events and then allow total, across-the-board exemptions for those who will be responsible for significantly more impacts to the general public through their control and operation of a critical infrastructure resource.

Questions

1. Who is the “Section 20, LLC” corporation and can they be linked to subversive activities as described in The California Corporate Code, Section 35000 or any questionable and/or illegal activities or environmental violations in the U.S or abroad?
2. Who is financing Bright Source, what are their political and economic connections and can they be linked to subversive activities as described in The California Corporate Code, Section 35000 or any questionable and/or illegal activities or environmental violations in the U.S or abroad?

3. Has the Dizon Family or any of their affiliated 7R Group of Companies ever been linked to any questionable, illegal or subversive activities or environmental violations in the U.S, the Philippines or abroad?
4. Is the St. Theresa Mission being developed as a result of a collaborative effort between Bright Source, their highly confidential finance partners and other Limited Liability Corporation's to draw attention and impact analysis away from the long-standing community of Charleston View and/or discredit legitimate local residents concerns?
5. Given the fact that power generation is considered a critical infrastructure resource, doesn't the public's right to know who the owner/operators of the HHSEGS are supercede the corporations need to hide their true identity and limit their liability?

Recommendations

- Disclose and submit into the public record the background, affiliations and links of those who will be responsible for financing the construction and operation of the HHSEGS.
- Perform a detailed background check for CEC review on any corporation, organization, association or individuals currently associated with the HHSEGS project site including the "Section 20, LLC." corporation. This should include any links to criminal, fraudulent, environmental degradation, human rights violations or questionable activities or associations with subversive activities, either in the U.S. or abroad.
- Disclose and submit into the public record a general background of any corporation, organization, association or individuals currently associated with the HHSEGS project site including the "Section 20 LLC" corporation. This should include any links to criminal, fraudulent, environmental degradation, human rights violations or questionable activities or associations with subversive activities, either in the U.S. or abroad.
- Submit into the public record a background check on the Dizon Family, the 7R Group of Companies, the Golden Ridge Corporation and Magnificat Ventures Corporation that includes any links to criminal, fraudulent, environmental degradation, human rights violations or questionable activities or associations with subversive activities, either in the U.S. or abroad.

SOILS

"The environmental justice framework shifts the burden of proof to polluters/dischargers who do harm, who discriminate, or who do not give equal protection to people of color, low-income persons, and other "protected" classes or vulnerable populations."

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.

SOILS

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. GEOTECHNICAL EVALUATIONS: INADEQUATE DATA

Background

In Appendix 5.4A, Preliminary Geotechnical Report, pp.18, the applicant states:

“.....These soils are prone to settlement and should be considered unsuitable for support of structures and improvements in their existing condition. Shallow foundations, concrete slabs-on-grade, exterior concrete flatwork, pavement sections, and other improvements will need to be founded on a zone of adequately placed and compacted structural fill. The composition, thickness/depth, lateral extent, and compaction of structural fill will need to be addressed as part of a design-level geotechnical evaluation.” (Emphasis added.)

In Section 5.4, Geologic Hazards and Resources, pp. 10, the applicant states:

“Expansive soils can be mitigated by removing the soil and backfilling with non-expansive soil, instituting chemical stabilization of the soil, or constructing a foundation treatment that resists uplift of the expansive soil. Soil types present in the central part of the solar field site may exhibit expansive properties potential; specifically in the areas of the site underlain by lacustrine deposits (this includes the proposed solar site area). A design-level geotechnical investigation will be performed to further determine the expansive soils potential for the site and present appropriate mitigation recommendations.” (Emphasis added.)

In 2011-09HH, Applicants Supplemental Response to Data Adequacy Review, pp. 53, the applicant states:

“Following submission of the AFC it was discovered that an error had been made in AFC Appendix 5.15E, Postconstruction Hydrology Analysis. The only substantive change was to revise the amount of impervious surface from 14.5 percent to 27.5 percent. This change does not change the conclusions of the Water Resources Section. A revised Postconstruction Hydrology Analysis is provided as part of this Supplement, as Appendix 5.15ER. Due to the size of the report, five copies are being submitted under separate cover to the CEC. An electronic copy will be provided upon request.” (Emphasis added.)

Comments

The Preliminary Geotechnical Report makes several references to soil unsuitability at the project site in some locations. Actual structural plans and implementation of the project is also repeatedly cited as in need of a “*design level geotechnical evaluation*”, which has so far failed to be presented for review or analysis.

Given the importance of appropriate foundations and structural integrity, especially considering the project will be responsible for the introduction of high voltage transmission lines, a natural gas pipeline, other potentially flammable and/or hazardous materials, ground vibrations resulting from turbine engines and the need for accurate heliostat tracking, the lack of data, information and analysis regarding this critical component of the project can only be deemed thus far, *inadequate*.

The applicant has, at least to some degree, begun to demonstrate a pattern of both errors and changing design elements associated with their projects.

The cost overruns with the Chevron Coalinga plant were the result of both changes to design as well as failing to catch significant design errors until the project was well advanced. After Bright Source brought on Beltech at Ivanpah, they again tried to make significant design changes after the planning processes were complete (that were denied).

Bright Source claims to be incorporating an important new technological advancement at the HHSEGS site, but so far its design credibility is unsubstantiated. There are also noted inconsistencies with how the mirror washing techniques will be implemented; first water, then pressurized air, and recently, applicant shifted design gears again and is now hoping to withdraw the auxiliary boilers.

An error was initially made in reporting the projects water requirements at 400 acre-ft per year and as noted above, an error was also made calculating the amount of impervious surface at the project site *by almost 100%*, now projected to be 887 acres instead. While the applicant asserted, “*This change does not change the conclusions of the Water Resources Section*”, the referenced Appendix 5.15ER that contained the revisions was not included in the Supplemental Response, is not available as a separate document on the CEC website and therefore, the applicants claims of “*no changes to the conclusions*” are unverifiable.

As quoted [here](#), Bright Source itself has stated, “*We do not intend to act as EPC [Engineering, Procurement and Construction] contractor on Ivanpah or future projects as construction and construction management are not our core competencies.*”

Given the magnitude and scope of what Bright Source is attempting, including trying to make renewable solar technologies viable, it is understood that both changes and errors can be expected. However, the comments above attempt to highlight the fact that critical design-level geotechnical evaluations and engineering elements of the project should be considered a critical priority incorporated for review now, not left to be “worked out” after the project is approved.

Even someone such as myself - with no experience in construction whatsoever - can reasonably predict the impacts of what a design level geotechnical evaluation means to the project.

For starters, it will determine the amount of affected acreage (10 acres? 100 acres? 1,000 acres?) and amount of soil that must be removed and/or replaced to ensure structural integrity (10 tons? 100 tons? 1,000 tons?). This in turn will allow an estimate of the types and number of heavy equipment/vehicles required, number of workers needed and for how long, scheduling requirements to estimate the projects overall completion date, methodology for stabilization (remove from site or mix with stabilizers), required materials/resources and cost analysis.

These estimates will then allow an impact analysis of; soil and vegetation loss calculations, site disturbances, changes to PM₁₀ and PM_{2.5} levels from fugitive dust, other emissions from number and kind of heavy equipment, delivery trucks and other vehicles, traffic increases to roads (how much will be hauled in or out), stormwater management/flood control, sheet flow, and economic impacts (more workers, higher costs, changes to completion date?).

All the elements and the corresponding impacts described above cannot have been incorporated in the original AFC files nor have they been submitted to the CEC for analysis in subsequent documents -because a design level geotechnical evaluation has yet to be undertaken. So this critical component of the project has yet to be documented, incorporated, analyzed and/or potentially mitigated.

Questions

1. Given the nature of soils described in the Preliminary Geotechnical Report and its subsequent recommendations, how can impacts of the HHSEGS project be appropriately evaluated without incorporating the requirements of a design-level geotechnical evaluation?
2. What are the estimates and answers to the issues/questions raised above? (Emission changes, number of vehicles and kind, soil/vegetation loss, stormwater management/ sheet flow, etc.)
3. What changes and corresponding impacts did the correction/increase of impervious surfaces at the HHSEGS project site make to its overall footprint during both construction and operations?

Recommendations

- Prepare a design level geotechnical evaluation of the proposed project site and incorporate results into impact analysis for CEC Staff and public review prior to issuing a decision.
- Disclose and evaluate impacts of the project as a result of changes to project site's impervious surface increase to 27.5%.

2. SCOPE OF AFFECTED SOILS: INADEQUATE DATA

Background

In Appendix 5.15A, Construction Drainage, Erosion and Sedimentation Control Plan/Stormwater Pollution Prevention Plan, pp. 62, the applicant states;

“No soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil are anticipated to be used on the project site.”

In Section 5.4, Geologic Hazards and Resources, pp. 10, the applicant states:

“.....Soils with an elevated solubility potential will need to be either blended with non-soluble soils to adequately reduce the solubility potential, or exported from the project site.”

Comments

There are significant contradictions with regards to what is actually going to occur to soils at the project site – either that or the applicant has yet to clearly anticipate the project sites needs.

As described in the first section of my comments, “Geotechnical Evaluation: Inadequate Data”, the Preliminary Geotechnical Report has stated that in some areas, the composition and engineering properties of the soils will have to be changed if the project is to have structural integrity.

And again, the applicant has already stated that mitigation measures to expansive soils will include, *“removing the soil and backfilling with non-expansive soils, instituting chemical stabilization of soils or constructing a foundational treatment.”* (What’s a “treatment”?)

If the native soil is removed and replaced with another kind of soil, that’s an “amendment” and it’s not a *potential* change, it’s a change – period (and a significant one I might add). If chemicals are added to stabilize the soil, it changes the chemical properties of the soil and if native soils are blended with anything else, it’s changing the chemical, engineering and erosion resistance of the soils at the site. So how has the applicant failed to anticipate these impacts?

Questions

1. Why has no reasonable description or disclosure of the scope of the affected soils been incorporated for analysis and review, even though the AFC files liberally reference issues relative to soil suitability?

Recommendations

- Prepare a design level geotechnical evaluation of the proposed project site and incorporate results into impact analysis for CEC Staff and public review prior to issuing a decision.
- Disclose and evaluate impacts resulting from required changes to site's soil composition, including but not limited to; number of acres and amount of soil affected and their locations, methods that will be utilized to stabilize soils per location depending on soil type and operational need, amount of soil projected to be removed from project site, amount of soil projected to be imported to project site, changes to emissions and fugitive dust levels resulting from required changes to soil composition, as well as a reasonable assessment of anticipated changes to chemical, engineering and erosional properties at the site due to project requirements for soil stabilization.

3. SOIL SUITABILITY: INADEQUATE IMPACT ANALYSIS

Background

In Appendix 5.4A, Preliminary Geotechnical Report, pp. 18, the applicant states:

"Due to the relatively loose and moisture sensitive nature of some of the native soils on site, adequate surface drainage should be provided to reduce ponding and infiltration of water into the subsurface soils, as appropriate. Surface runoff should be intercepted, collected, and not permitted to flow or infiltrate into subsurface soils adjacent to or beneath structures." (Emphasis added.)

"The results of our subsurface explorations and laboratory tests indicate the presence of soils with high porosity and high collapse potential. These soils are prone to settlement and should be considered unsuitable for support of structures and improvements in their existing condition." (Emphasis added.)

Comments

Again, soil suitability is red flagged for some areas of the project site yet the location and scope of these areas have so far remained a mystery.

This time, identified issues and recommendations focus mainly on water impacts to native soils but again, locations and scope of the affected soils to structures and "improvements" due to surface runoff, flow and infiltration specific to the project site remain a relative unknown.

For example, one significant component of the "soil/water" equation is the applicants' advertised intent to utilize existing vegetation to increase soil stabilization in efforts to protect against erosional forces.

However, because the amount of the affected acres or methods to be utilized to make changes to soil composition are unknown, it follows the amount of removed and/or disturbed vegetation also remains an unknown. Therefore, no reasonably accurate analysis of construction and operational drainage, erosion, sedimentation impacts, stormwater/flood impacts, sheet flow or pollution prevention plans are possible if vegetation is still to be considered a significant component of mitigating these issues.

Another example of potentially significant impacts regarding soil suitability, based on the Preliminary Geotechnical Reports analysis, is the inclusion of stating “improvements” placed in these soils should be considered unsuitable for support in their existing condition - as this may directly apply to the heliostat assemblies that will dominate the project site.

Questions

1. What components of the HHSEGS project would be defined as improvements over structures? Heliostats? Transmission lines? Storage tanks? Fences? Other?
2. Has any evaluation been done regarding soil suitability in relation to heliostat stability throughout the project site?
3. What are the projected impacts of unsuitable soils to heliostats?
4. What are the best case and worse case scenarios of soil unsuitability at the project site in relation to soil criteria for heliostats and other defined improvements?
5. What impacts will run off, flow and water infiltration to soils surrounding heliostats make under “natural” conditions? Resulting from mirror washing activities?
6. For undisturbed soils, how does the applicant intend to “*not permit flow to or infiltration of*” subsurface soils adjacent to or beneath structures? Will this apply to “improvements” as well?

Recommendations

- Prepare a design level geotechnical evaluation of the proposed project site and incorporate results into impact analysis for CEC Staff and public review prior to issuing a decision.
- Disclose and evaluate impacts resulting from required changes to site’s soil composition, including but not limited to; number of acres and amount of soil affected and their locations, methods that will be utilized to stabilize soils per location depending on soil type and operational need, as well as a reasonable assessment of anticipated changes to chemical, engineering and erosional properties at the site due to project requirements for soil stabilization for both structures and improvements at the project site.

- Provide a specific and separate analysis relative to heliostat assemblies and soil suitability under all foreseeable conditions at the project site (i.e, floods, storms, mirror washing, high winds, required soil composition per locations, methods to be incorporated to sufficiently stabilize soils, etc.)

4. GEOLOGICAL HAZARD

Background

In Appendix 5.4A, Preliminary Geotechnical Report, pp. 10, the applicant states:

“Pahrump fault is located in Nevada, approximately 1,500 feet northeast of the project site. The fault extends in a northwest-southeast direction and approximately parallels the northerly site boundary. Louie, et al., (1997) indicates that the Pahrump valley fault zone has the potential to generate an earthquake of moment magnitude 7.2.”

In Section 5.4, Geological Hazards and Resources, the applicant states:

“Ground shaking presents the most significant geologic hazard to the proposed solar site and transmission lines.” (pp.8)

“The solar field area could be subject to seismic shaking. The project facilities will need to be designed and constructed to withstand earthquake shaking in accordance with current LORS.” (pp. 9)

Comments

In addition to inadequate data regarding requirements and impacts associated with on-site soil stabilization, additional requirements relative to design and construction elements necessary to withstand earthquakes have also failed to be incorporated in the current review.

Questions

1. What additional measures will need to be instituted to insure structural stability and integrity with respect to potential earthquakes?
2. Will earthquake design and construction result in additional impacts (i.e., more trucks, soil removal/replacement and loss, higher emissions, etc.)?

Recommendations

Based on design level geotechnical evaluation and the resulting requirements, estimate any additional measures that will be required to HHSEGS project design and construction and their corresponding impacts.

5. CORROSIVE SOILS

Background

In Appendix 5.4A, Preliminary Geotechnical Report, pp. 19, the applicant states:

"The results of our resistivity tests indicate the presence of on-site soils that are very severely corrosive to steel....."

In Data Response Set 2C, applicants' response to Data Request #152 (pp.15) describes heliostat components and states:

Materials

- 1. Steel parts are mainly zinc galvanized (hot dip galvanizations).*

Comments

Since steel parts will be associated with heliostat assemblies and some on-site soils have been identified as very severely corrosive to steel, more information on potential impacts are in order.

Questions

1. Will all steel parts contacting on-site soils be galvanized?
2. Will galvanization be sufficient to protect steel components in contact with very severely corrosive soils or will additional changes to soil composition be required as well?
3. What is the projected life span of the heliostat posts in on-site soils?
4. Will there be any changes to chemical properties of soil due to corrosion forces contacting zinc galvanization (i.e, increases in zinc and/or other minerals content) over the life of the project?

Recommendations

N/A

VEGETATION

“EPA estimates that pesticide exposure causes farmworkers and their families to suffer between 10,000 to 20,000 immediate illnesses annually, and additional thousands of illnesses later in life. Of the 25 most heavily used agricultural pesticides, 5 are toxic to the nervous system; 18 are skin, eye, or lung irritants, 11 have been classified by the U.S. Environmental Protection Agency (EPA) as cancer-causing; 17 cause genetic damage; and 10 cause reproductive problems (in test of laboratory animals).”

*“Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities”
A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.*

VEGETATION

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. MESQUITE EXTINCTION

Background

In Data Request Set, 1C, #85/86, Staff requested data regarding location of mesquite thickets. However, no data is requested regarding projected impacts to mesquite thickets due to potential water drawdown during the life of the project.

In 2011-11-17 Data Response Set 1A, the applicant states:

"Mesquite is the most abundant groundwater-dependent vegetation in the study area.⁶ Mesquite have deep root systems that can extend more than 100 ft below the surface. Quade et al. (1995) note that the mesquite trees of the Pahrump Valley "mark water depths of ~5-20m" (16 to 66 feet). The mesquite on coppice dunes and in arroyos along the Stateline fault system occur at a locally shallow water table." (pp. 44)

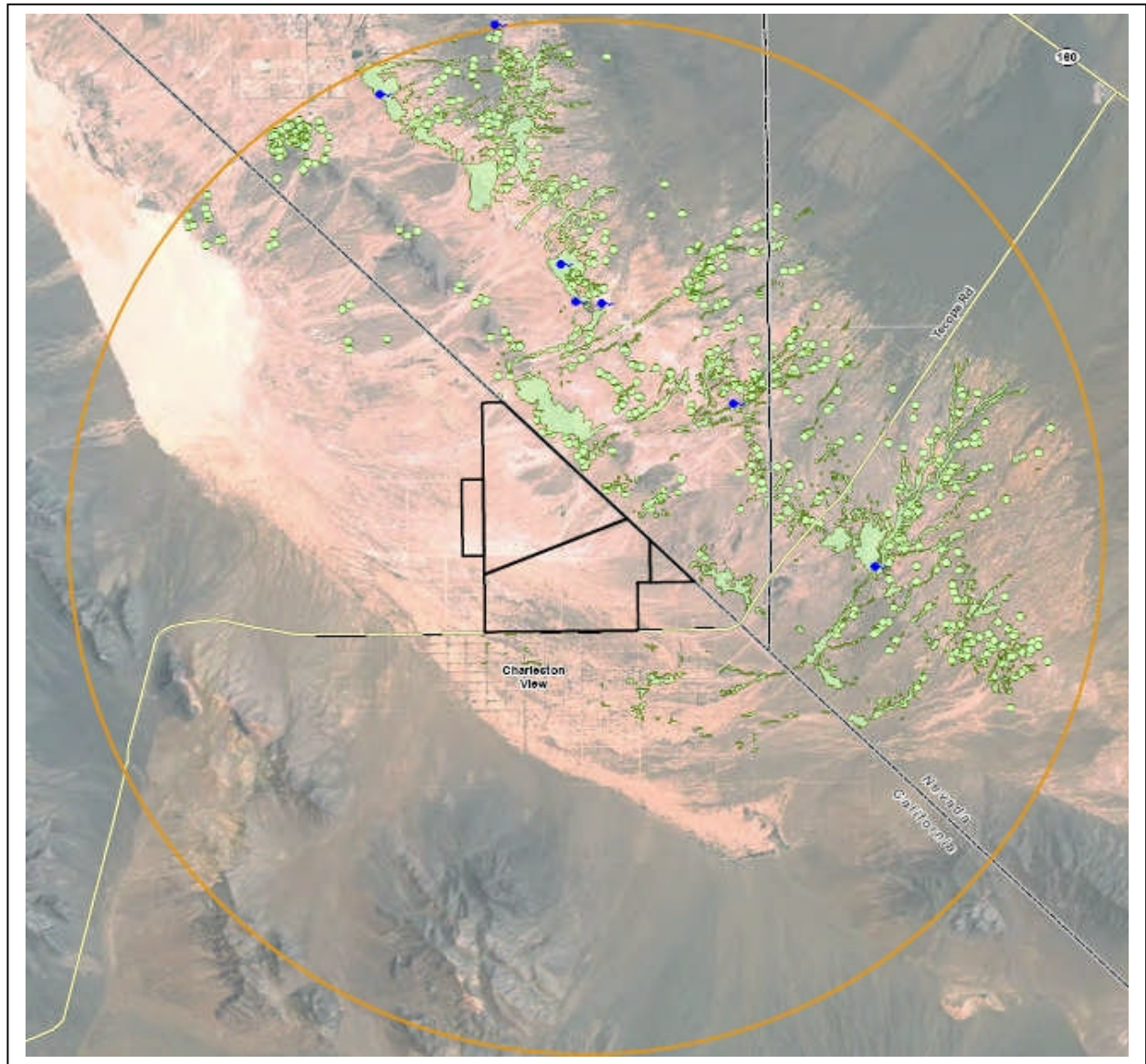
"With respect to groundwater dependent vegetation: There are only a handful and none currently flow, although shallow-groundwater dependent vegetation survives near all. This vegetation, dominated by mesquite, generally shows more dieback closer to Pahrump." (pp.42).

Comments

The mesquite groves adjacent to the project site are a very important and unique component of the area for both wildlife and aesthetic values. Through historical documents and the applicants' own statements above, cumulative impacts to groundwater have already caused springs to dry up, species to become extirpated (i.e., Raycraft Ranch killfish and Pahrump Ranch killfish), and mesquite die back being noted in areas closer to Pahrump, where groundwater depletion is more prevalent.

According to the most recent study on the groundwater flow for the project area titled, "[Development of Groundwater Flow Model of Pahrump Valley, Nye County, Nevada and Inyo County, California for Basin-Scale Water Resource Management](#)", (Comartin, 2010, pp. 98), the lack of data regarding mesquite extinction depth is noted as a potentially significant issue, as stated, *"Lastly, little information is known about the extinction depth of mesquite, and this issue will become more important if the water levels continue to drop in Pahrump due to pumpage overdrafts."*

Based on this groundwater dependent vegetation map supplied by the applicant (2011-11-17 Data Response Set 1A, pp. 61), the second most abundant vegetation in the study area occurs directly adjacent to the proposed project site. The first most abundant vegetation lies close to Pahrump in the north, the same area the applicant stated was showing the highest signs of mesquite dieback.



While the applicant cites mesquite root systems in the Pahrump Valley “*mark water depths of (16-66 feet)*”, the on-the-ground reality is, mesquites in the area are actually occurring “*at a locally shallow water table.*”

The applicant assures everyone that the HHSEGS project will not result in any significant impacts to groundwater dependent vegetation throughout all phases of the AFC files and subsequent data request responses - so much so that the applicant asserts it is unnecessary *to even consider mitigation measures*. If the applicants' assumptions are incorrect, the price will be high to the mesquite woodlands, to wildlife dependent on this habitat and to the areas most unique vegetative features.

Questions

1. If mesquite root systems are equally suited to deep water tables versus shallow water tables, why haven't mesquites proliferated throughout the valley instead of concentrating in shallow water table areas?
2. If the applicant has noted that mesquite dieback is more prevalent towards the Pahrump area where water pumpage and overdraft is most noted, why have they embraced the assumption that the proposed project would have no adverse impacts to mesquites located adjacent or near the project site?
3. Given the fact that the proposed HHSEGS project will be directly responsible for initiating the largest water groundwater pumping of the area to date, what data/evidence supports the assertion that groundwater depletion impacts to local groundwater dependent vegetation will be negligible and/or less than significant?
4. If little information is available regarding mesquite extinction depths and this was identified as an increasingly important issue if water levels continue to drop, what data/evidence lends credibility to the applicant assumptions that it is unnecessary *to even consider potential mitigation measures*?

Recommendations

- I sat here for a long time and could not think of any recommendations. If the project causes the mesquites to die off, there are no mitigation measures that can fix it. I am only struck by the irony that the potential demise of our mesquites, the wildlife that depend on them, and the continuing desertification of the planet will be accomplished in the name of "renewable and sustainable" living.

2. UNSUPPORTABLE ASSUMPTIONS/ADVERSE VEGETATIVE IMPACTS

Background

In Section 2.0, Project Description, pp. 28, the applicant states:

“Vegetation clearing, grubbing, and contour smoothing in the heliostat fields will occur where necessary to allow for equipment access and stormwater management. In areas where these activities are not required for access or construction, the vegetation will not be removed but will be mowed (if needed) to a height of approximately 12 to 18 inches.”

Comments

The applicants’ summary description of proposed plans to vegetative resources contains a multitude of significant issues that fail to be addressed in the AFC files or subsequent documents.

In the Los Angeles Times article, [“Mojave Solar-Power Project Sacrifices The Desert For The Earth”](#), Larry La Pre, BLM’s wildlife biologist for much of the Mojave said regarding Bright Sources identical vegetative plans for the Ivanpah plant that it is *“complete nonsense”* when referring to this experimental approach to shear off the tops of desert plants.

During the application process for the Ivanpah plant, the BLM submitted [Comments on Applicant’s Revised Storm Water Design Plans](#), (April 8, 2009), that included analysis and discussion regarding the applicants’ vegetative design plans (pp. 8/9).

“Other information is provided but is not believable - for instance, the proposal to cut vegetation to provide clearance for equipment, and then to shade the vegetation with heliostats, does not support an assumption that long-term vegetation effects on runoff will be negligible. Currently, these calculations are entirely based on best-case assumptions that are not supported by any provided data..... Should these assumptions prove incorrect, the entire Low Impact Development scenario may be unworkable. These calculations should be re-done using more conservative assumptions to determine whether the Low Impact Development scenario is still a feasible option”. (Emphasis added.)

“BLM has provided verbal comments for some time regarding assumptions of the status of vegetation over the long-term operation of the facility. We have suggested that BrightSource’s hydrogeologic and hydraulic calculations should not be based on the current state of vegetation, nor on the expected state of vegetation shortly after construction. Instead, we have stressed that the flow calculations need to be based on the expected worst-case vegetation conditions that will occur during the lifetime of the facility.” (Emphasis added.)

“BLM agrees that some mechanism of coming to an understanding of the long-term status of the vegetation needs to be identified. However, such a mechanism must consider all potential parameters that may influence vegetation. These may include, but not be limited to:”

- *Cutting/trimming to create clearance;*
- *Compaction of soil during construction;*
- *Shading by heliostats;*
- *Relocation of precipitation by presence of heliostats;*
- *Addition of water through heliostat washing;*
- *Modification of stormwater flow by presence of heliostat supports and maintenance roads;*
- *Use of dust suppressants; and*
- *Use of weed management practices.*

“Given the complexity of these parameters, and the lack of data on similar projects in this environment, BLM understands the difficulty in projecting what the overall effect will be. However, the current documentation appears to assume that the overall effect will be to maintain current conditions. This does not appear to be a supportable assumption. In general, most of the above factors can be assumed to negatively impact the native vegetation. The result may be replacement of the native vegetation with non-native species that are more adaptable to shade and other stressors, or it may result in denudation of certain areas.” (Emphasis added.)

“It is recommended that worst-case scenario calculations be performed to determine the impact of large-scale vegetation denudation on stormwater flows, and resulting sedimentation, erosion, and heliostat stability calculations. We understand that BrightSource has implemented field studies on the vegetation impacts. BLM has no information on these studies, so cannot comment on their scope and purpose. If site specific field studies are eventually approved to obtain data, they must incorporate all potential stress factors, not just cutting and trimming.” (Emphasis added.)

Despite the BLMs extensive comments and analysis identifying significant issues and potential impacts associated with these same “vegetative plans” during the Ivanpah analysis, it appears Bright Source chose to ignore both the issues and the recommendations. Instead of building upon the analysis to explore potentially better designs, disclose more realistic impacts, or develop scenario’s other than “best-case” unsupportable assumptions, the applicant submitted nothing in the AFC files for the HHSEGS that would suggest there could be potential problems, much less working to address them.

Every source – with the exception of the applicant, who has an inherent conflict of interest regarding the feasibility of these plans – has clearly expressed this “vegetative plan” is ridiculous.

Furthermore, the applicant didn't even try to project or model impacted acres of vegetative disturbances; from construction, from operations, over the life of the project, potential denuded areas – temporary or permanent, acres requiring mowing, frequency of mowing, impacts of mowing and/or mirror washing, etc.

As it stands, the entire project sites native vegetation could conceivably be irreparably damaged and/or denuded with no restrictions.

Questions

1. Excluding mitigation measures, what is the amount of acres projected to be permanently denuded as a result of: the construction phase? Operational phase? Over the life of the project? In "best-case" and "worse-case" scenarios? Compared to "with" mitigation measures?
2. Excluding mitigation measures, what is the amount of acres projected to require "mowing" of vegetation as a result of: the construction phase? Operational phase? Over the life of the project? In "best-case" and "worse-case" scenarios? Compared to "with" mitigation measures?

Recommendations

- Proposed vegetative plans currently lack adequate data to address direct, indirect and cumulative impacts at the project site. This must be reasonably remedied through modeling, data requests, analysis, disclosure and discussions regarding the obvious significant impacts the current vegetative plan will produce in order to consider if appropriate mitigation measures are even possible.
- Review and incorporate BLMs comments and analysis regarding impacts to vegetative resources, including the need for further review and other associated recommendations.

3. REVEGETATION: SPECIES & TECHNIQUES

Background

In Section 5.11, Soils, pp. 6, the applicant states:

"Soils in the project area have a variety of characteristics depending on landform and location. Land uses for these soils are generally limited to pasture, range, or wildlife habitat. Natural vegetation is expected to be sparse and dominated by salt- and drought-tolerant species. As such, the revegetation potential of disturbed areas not covered by permanent facilities will likely be challenging and will require suitable plants and establishment techniques." (Emphasis added.)

On pp. 10, the applicant states:

“One characteristic of the project site soils is their expected low suitability to support revegetation. These soils will likely have severe limitations for cultivation and have soil limitations in the rooting zone, limitations due to climate, or have limitations due to their risk for erosion..... In addition to the proper choice of plants and establishment techniques, soil amendments (i.e., fertilizers) could be considered to favor revegetation success.” (Emphasis added.)

On pp. 15, the applicant states:

“Revegetation of the area disturbed by construction will be accomplished using locally prevalent, non-invasive, fast-growing plant species compatible with adjacent existing plant species.” (Emphasis added.)

Comments

In general, I think the applicant is applying more “best-case” scenarios to the revegetative plans despite admitting significant inherent difficulties.

Questions

1. What are the specific species of “suitable plants” the applicant is proposing to revegetate the proposed project site with?
2. What are the specific species the applicant is referring to with respect to “*locally prevalent, non-invasive and fast growing*”?
3. What are the establishment techniques the applicant intends to use to revegetate disturbed areas?
4. What kind of soil amendments will the applicant use to favor revegetative success that is compatible with salt- and drought-tolerant species?
5. Will suggested fertilizers cause changes to soil composition favoring invasive or noxious weeds or other non-native species?
6. What is the projected annual cost of revegetating disturbed sites after: Construction? During normal operations? Over the life of the project?
7. Will the applicant hire a subcontractor to implement revegetation plans and vegetation maintenance: During construction? During normal operations?

Recommendations

N/A

WATER RESOURCES

"Water Poverty. An estimated one-sixth of the world's population (1.1 billion people) remains without access to improved sources of water. More than 1.4 billion people lack access to safe water. Dirty water is the worlds "deadliest" pollutant."

*"Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities"*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002.

WATER RESOURCES

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. WATER QUALITY: INADEQUATE DATA

Background

In Section 5.15, Water Resource Management, Table 5.15-4, pp. 12/13, the applicant provides information on groundwater quality data for the Orchard Well, which includes 30 different types of qualities tested. The applicant does not provide any dates as to when this groundwater analysis was conducted, who performed the testing or any raw data associated with the test.

Comments

While the applicant supplied 30 types of data, cross-referencing the applicants data with the EPA's [National Primary Drinking Water Regulations](#) (or primary standards), 2 elements were not included in the applicants groundwater quality data, these being Mercury and Selenium.

Mercury groundwater concentrations and contamination is usually associated with discharge from refineries and factories, runoff from landfills and croplands, and erosion of natural deposits. It is often used for electrical products.

Selenium groundwater concentrations and contamination is usually associated with discharge from petroleum refineries, discharge from mines and erosion of natural deposits. One of the areas widely associated with Selenium is petroleum.

The EPA standards are legally enforceable standards that apply to public water systems. The HHSEGS will be responsible for introducing and importing natural gas, diesel, hazardous chemicals and electrical components that have the potential to cause site contamination, which may include significantly increasing Mercury and Selenium concentrations and contamination in water and/or soil. Groundwater quality data of the current level of Mercury and Selenium at the Orchard Well should be incorporated in the public record in order to have comparison data to determine impacts and trends over the life of the project in the event that contamination should occur.

Questions

1. Due to the fact that the HHSEGS will introduce relatively large quantities of natural gas, diesel, hazardous and non-hazardous chemicals, chemical dust suppressants, chemical soil stabilizers, herbicides, and pesticides into what may now be considered a relatively pristine environment, shouldn't extensive groundwater testing data be required and submitted into the public record in order to compare direct, indirect and cumulative impacts over the life of the project?

Recommendations

- Require the applicant to submit initial groundwater quality analysis information such as date of test, who performed the test and any raw data sheets associated with the Orchard Well test.
- Require a complete groundwater quality analysis that includes not only the missing elements of Mercury and Selenium but also test for EPA listed organic chemicals such as Acrylamide, Alachlor, Atrazine, Benzene, Benzo(a)pyrene (PAHs), Carbofuran, Carbon tetrachloride, Chlordane, Chlorobenzene, 2,4-D, Dalapon, 1,2-Dibromo-3-chloropropane (DBCP), 0-Dichlorobenzene, p-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, Dichloromethane, 1,2-Dichloropropane, Di(2-ethylhexyl) adipate, Di(2-ethylhexyl) phthalate, Dinoseb, Dioxin (2,3,7,8 –TCDD), Diquat, Endothall, Endrin, Epichlorohydrin, Ethylbenzene, Ethylene dibromide, Glyphosate, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl (Vydate), Polychlorinated biphenyls (PCBs), Pentachlorophenol, Picloram, Simazine, Styrene, Tetrachloroethylene, Toluene, Toxaphene, 2,4,5-TP (Silvex), 1,2,4-Trichlorobenzene, 1,1,2-Trichloroethane, Trichloroethylene, Vinal Chloride, and Xylenes.

2. PROJECT WATER NEEDS

Background

In Section 5.15, Groundwater Interim Assessment, pp. 10, the applicant states:

“The proposed Hidden Hills facility will require a reliable groundwater source to supply the boiler system. The water will be derived from one or more on-site supply wells. Based on the proposed system design, a supply of up to 400 acre-feet per year is needed to meet the site’s water demand.” (Emphasis added.)

In 2011-11-17, Data Response Set 1A, pp. 36, #39, the applicant states:

“(Please note that the reference to 400 acre-feet per year in one of Applicant’s technical reports was made in error.)”

In the 2011-11-03 Transcript Informational Hearing, pp. 138/139, Mr. Warren asks the applicant about water usage.

“I want to ask the applicants about the amount of water that’s currently projected at 140 acre feet. So as your project continues and if you discover that you need substantially more water for cleaning, if it’s more dirty of an area or more wind, more caking of mud and stuff that gets on the mirrors during bad weather, is there a provision to – you know, basically I’m asking what happens if you need a lot more water than you’ve got, is the question?”

Comments

While the applicant has recanted on the projects required water needs of 400 acre-feet per year, when Mr. Warren requested an answer to “*what happens if you need a lot more water...*”, Senior Project Manager Clay Jensen failed to answer the question. As far as I know, no one has yet answered this question and to date, no one has required an answer either.

According to a March 11, 2011 [newspaper article](#) in the Pahrump Valley Times, the U.S. Department of the Interior gave approval for the use of 4,400 acres of public land in order to build two, 250-megawatt solar power plants in Amargosa Valley, an area that draws its water from the Pahrump Valley underground aquifer as well as the potential HHSEGS site.

The article also went on to state that the SEGS would “acquire *at least 236 acre feet per year of additional water rights to mitigate the impact of water use.*” However, it did not specify what the actual total water requirements of the Solar Millennium project is projected to be.

Since the actual projected water use of the Solar Millennium project is unknown, it is hard to use it for comparison values. Yet, if the Solar Millennium project had equivalent water “needs” of 140 acre-feet as the applicant is now stating will be required for HHSEGS operations, the 236 additional acre feet of water per year comes pretty close to the original 400 acre-feet per year the applicant first set forth in the AFC files.

Questions

1. What is the answer to Mr. Warren’s question? Specifically, what happens if the applicant discovers the water requirements are more than they are currently projecting?
2. Will there be any limit or cap on the applicants water use as a condition of the permitting process? If so, will the CEC publicly disclose the water use limitations? Also, how will it be monitored and enforced?
3. What are the legal obligations of the applicant and CEC to Nevada, the Nevada State Engineer and/or the Pahrump community if water consumption and/or contamination by the HHSEGS makes significant impacts to the Pahrump aquifer?

Recommendations

- As a condition of the permit, incorporate a water use cap of 288 acre-feet per year during construction and 140 acre-feet per year during operations at the HHSEGS site.
- As a condition of the permit, require water use monitoring and records in order to track impacts from the construction and operation of the HHSEGS to insure water consumption does not exceed projected usage.

- As a condition of the permit, charge the owner/operators of the HHSEGS site for their water use and wastewater to discourage waste and to prevent possible abuse of water consumption.
- As a condition of the permit, incorporate legal obligations to the state of Nevada that insure the protection and potential compensation if the HHSEGS significantly impacts the Pahrump aquifer.

3. WATER: PERENNIAL YIELD

Background

In Section 5.15D, Groundwater Interim Assessment, pp. 21, the applicant states:

“It has been estimated that based on the projected population increases as many as 20,000 additional domestic wells will be constructed in Pahrump Valley in the next 50 years and that the total domestic demand will increase from approximately 17,000 acre-feet per year up to 28,000 acre-feet per year (Buqo 2004).”

In Section 5.15D, Groundwater Interim Assessment, pp. 26, the applicant states:

“Current pumping is below the perennial yield estimated by the USGS (Harrill, 1986).”

Comments

I have significant concerns regarding the applicants’ constant references and use of the USGS’s estimated perennial yield from the Pahrump Valley aquifer. USGS did not, and does not, set the standards for sustainable perennial yield, the Nevada State Engineer does and the legally established perennial yield is 12,000 acre-feet per year.

Between 2004 through 2008, USGS estimated the basin perennial yield was exceeded for the Pahrump Valley aquifer. In apparent response, in 2009 the Nevada Division of Water Resources changed their calculation assumption rate associated with domestic well usage from 1.0 acre-feet per year to 0.5 acre-feet per year, an adjustment rate that caused a 50% reduction in water use calculations. However, even with this fifty percent reduction in calculation rates, the estimated 2010 basin withdrawal was still approximately 15,000 acre-feet per year. This withdrawal rate still exceeds the Nevada State Engineers basin perennial yield by 3,000 acre-feet annually. If this were not enough, the basin already has over 80,000 acre-feet of previously authorized water allocations – almost 7 times the maximum yield as calculated by the Nevada State Engineer.

While the applicant keeps insisting that there is sufficient water to support the HHSEGS, they are completely ignoring the fact that it has long been in a state of overdraft, it is already committed far and beyond its estimated perennial yield and that future water use in Pahrump can potentially continue to cause significant impacts to water availability for all users.

Questions

1. Why has the applicant consistently used the USGS 1986 study of Pahrump's perennial yield versus the actual legal limit set by the Nevada State Engineer?
2. Which perennial yield is CEC Staff using to evaluate water resource impacts, the USGS figures or the Nevada State Engineer standard?

Recommendations

- As a condition of the permit, incorporate a water use cap of 288 acre-feet per year during construction and 140 acre-feet per year during operations at the HHSEGS site.
- As a condition of the permit, require water use monitoring and records in order to track impacts from the construction and operation of the HHSEGS to insure water consumption does not exceed projected usage.
- As a condition of the permit, charge the owner/operators of the HHSEGS site for their water use and wastewater to discourage waste and to prevent possible abuse of water consumption.
- As a condition of the permit, incorporate legal obligations to the state of Nevada that insure the protection and potential compensation if the HHSEGS significantly impacts the Pahrump aquifer.

4. WATER TRANSPORT/RECYCLING

Background

In Appendix 5.15D, Groundwater Interim Assessment, pp. 25, the applicant states:

"Additionally, because the project site lies in California where no water right permit or approval is required to develop a groundwater source. Under California law, as an owner of land overlying a groundwater basin, BrightSource has a right to the reasonable and beneficial use of groundwater for use on the overlying land. Although there is no legal impediment to utilizing groundwater at the site, it is important to assess the extent to which pumping for the duration of project would affect groundwater supplies and groundwater levels in the vicinity of the project site and in the Pahrump Basin as a whole."

In Section 5.14, Waste Management, pp. 11, the applicant states:

"Remaining wastewater (approximately 1,358 gallons per day) will be disposed of offsite at an approved facility."

Comments

Due to the fact that Bright Source is not the “owner” of the land but is instead merely leasing it for industrial purposes, I’m not really sure how the reasonable and beneficial use applies and would like further clarification on this subject.

As a landowner myself, I had always assumed “reasonable and beneficial use” of my water was limited to what my property and lifestyle specifically required. I was not aware that I could also transport my water offsite and/or across state lines for other uses as well.

Based on the applicants’ estimates of wastewater to be disposed of at the rate of 1,358 gallons per day, this equates to approximately 850k gallons per year or 21.2 million gallons over a 25-year period that will be transported offsite and possibly across state lines.

Bechtel, a multi-national corporation, has recently joined forces with Bright Source and according to their [2011 Annual Report](#), Bechtel is now reporting they “*broke ground on Ivanpah*”.

Since this multi-national company is also highly diversified, as of 2002 Bechtel was reported to be “*involved in over 200 water and wastewater treatment plants around the world*”, according to this [Corporate Profile](#), with one of their wastewater treatment plants being [located](#) at the Nevada Test Site north of Pahrump.

Questions

1. Where will the water that is disposed of offsite ultimately go? Will it be repackaged and sold as bottled water or soda? Will it be reused in other industrial activities or for agricultural purposes?
2. Could the water that is trucked offsite from the HHSEGS be treated at Bechtel’s wastewater treatment plant at the Nevada Test Site and then reused by the HHSEGS to reduce both its raw water consumption rate and minimize the amount of raw water that will become contaminated?

Recommendations

- Verify that legal status of “beneficial and reasonable use” to insure this includes allowing the owner/operator to remove and transport California water from the site, possibly across state lines and/or directly or indirectly profit from its removal.
- In the public interest, assess the feasibility of recycling the wastewater at a wastewater treatment plant and transport it back for reuse at the HHSEGS over the life of the project.
- As a condition of the permit, set limits on the amount of water that can be removed offsite based on operational requirements and develop monitoring standards that insure offsite water removal stays within this limit over the life of the project.

5. WATER REPLACEMENT VALUE

Background

Throughout all documents, from both CEC Staff and the applicant, a central focus of the planning process revolves around water. Many of the public comments and concerns have also centered around the issue of water.

Some of the more critical issues involve the current state of the Pahrump Valley aquifer already being in overdraft, is there a separate aquifer that would feed the HHSEGS project, will the project affect the Amargosa River and its associated environment, and how will drawdown over the life of the project affect local wells and communities.

Comments

While there has been much discussion regarding drawdown impacts, there has been very little discussion regarding possible water contamination. However, in either case the affects are the same; no water, no life.

The issue of water, especially clean water, is the 21st century's hottest topic around the globe and I have two significant concerns regarding the introduction of the HHSEGS the areas water.

A) Global Water Exploitation

The first concern is how the applicant is exploiting the areas water resources because they are still "cheap". If the applicant had to pay for that water – as well as its reuse through wastewater treatment as many people must do today – the costs of the HHSEGS construction and operation would skyrocket. I believe this is one of the predominate reasons the applicant chose this site; cheap, unregulated water use with little accountability.

In true irony, Bright Source recently appointed Carlos F. Aquilar as Senior Vice President of Project Execution and International Development in May 2011. Mr. Aquilar's resume includes President of Bechtel de Mexico and Managing Director of Bechtel Enterprises Latin America from 1999 to 2001.

"In September 1999, Bechtel signed a contract with Hugo Banzer, the elected president and former dictator of Bolivia, to privatize the water supply in Bolivia's 3rd largest city. Cochabamba. The contract was officially awarded to a company named Aguas del Tunari, a consortium in which Bechtel held a 27.5 percent interest. Shortly thereafter, claims surfaced that water rates in that city went up an average of about 50 percent and that even collection of rainwater was being made illegal as a result of the privatization contract. Both of these actions resulted in the Cochabamba protests of 2000. Many had to withdraw their children from school and stop using doctors because of higher costs for water. Martial law was declared, and Bolivian police killed at least 6 people and injured over 170 protesters. Amidst Bolivia's nationwide economic collapse and growing national unrest over the state of the economy, the Bolivian government withdrew the water contract."

Source: Bechtel, Wikipedia

"In November 2001 Bechtel sued the country of Bolivia for \$25 million for canceling a contract to run the water system of Cochabamba, the third largest city in the county, after local people took to the streets to protest massive price hikes for water."

"Bechtel's Water Wars"
CorpWatch, Pratap Chatterjee
May 1, 2003

With respect to the events that occurred in Bolivia surrounding the issue of water, when World Bank President James Wolfensohn was asked about Cochabamba, he maintained that,

"...people in Bolivia and elsewhere should be charged for the use of public services (such as water), as public subsidies of such services lead to waste. According to Wolfensohn, "The biggest problem with water is the waste of water through lack of charging."
(Emphasis added.)

"Cochabamba Water Revolt"
Frontline/World, Sheraz Sadiq
April 12, 2000

Overall, industry leaders seem content to maintain the current double standard; large quantities of free or cheap water with little responsibility for industrial waste in order to keep "operating costs reasonable" while subjecting the general population to "expect to pay" attitudes with prices continually going up.

While the incident in Bolivia has probably received the most attention, many examples of how water privatization is profoundly affecting minorities and poor populations throughout the world have begun to surface. Some of their stories, as well as the current trend to privatize water around the globe, can also be viewed in the documentary, [Blue Gold: World Water Wars](#).

In addition to the privatization of water having the largest impact on those who cannot afford it, this film also addresses another hot topic, that being; once clean water is contaminated and no longer fit for human consumption, its required treatment converts a once natural resource into a private commodity no longer subject to protection for the public trust. The filmmakers even go so far as to suggest it is in corporate interests to contaminate water for the express purpose of gaining control over it through water treatment facilities and then selling it back to the public.

B) Value of Community Water

The second concern I have is that over the life of the HHSEGS project, our community will join the ranks of the statistics cited above, either due to drawdown making our wells useless or by the water becoming too contaminated to drink.

Because of the increased demands on water due to growing world populations, the current corporate global frenzy seeking to obtain water rights, the significantly increased demands on water due to fracking and other new oil and gas technologies and climate change affecting many regions through desertification, I attempted to ascertain how much water use and demand has grown in the US over the last several years.

Unfortunately, the USGS's report on "[Estimated Use of Water in the United States in 2010](#)" has been delayed until 2014, making it impossible to analyze or incorporate this data in the decision making process. I believe this information is critical in trying to determine the value of water - all water, but in this particular instance - our water. By what percentage has use and demand gone up per year? What areas are being affected the most? However, this portion of the equation is still an unknown.

With respect to the questions of what is our water value, I have attempted to project what our water worth is now and what would be the cost of replacing that amount of water if the cumulative impacts from the HHSEGS aren't fully realized until the end of the project in 25-30 years.

Because California's water rights only provide "reasonable use" as its reference, the only source I could find regarding estimated water requirements per acre came from the Utah [Water Right Exchange](#).

Here, one acre requires between 3-6 acre-feet of water. We have a total of 10 acres, which equates to 30-60 acre-feet.

According to the Nye County hydrologist, Pahrump's water is worth \$7,000 per acre-foot (Buqo, 2004). Therefore, the value of our water ranged between \$210,000 to \$420,000 dollars in 2004. I don't know what it would be valued at now.

When trying to determine the cost of replacement in 25-30 years, I used the projected increase found in the article, "[A Refreshing Idea](#)" by Chris Mayer (1/13/07).

"[T. Boone Pickens] says that over a 30-year period, he expects to make more than \$1 billion on his investment of \$75 million." [and] "... - or basically 13 times his money."

$$\begin{aligned} 13 \times \$210k &= \$2,730,000 \\ 13 \times \$420k &= \$5,460,000 \end{aligned}$$

Replacement value in 25-30 years is estimated to be between \$2.7 and \$5.4 million in today's U.S. dollars. It does not account for inflation or for the possibility that by that time, water may have become too scarce to even purchase in any amount.

In other words, there is no possibility that the majority – if not all of the residents of Charleston View – could afford to replace their water value in today’s market, much less in 25-30 years.

On a final note, I did discover the applicant also provided discussions regarding acre-feet of water in relationship to each acre for the area in Section 6.0, Alternatives, pp. 10:

“Assuming 1 ac-ft/yr/dwelling, under a maximum build-out scenario, the annual water usage would be 80 acre-feet. In 2009, NVDWR modified the assumed demand rate reducing it to 0.5 ac-ft/year. Assuming the more conservative 0.5 ac-ft/yr/dwelling, under a maximum build-out scenario the annual water usage would be 40 acre-feet.”

Since California has little to no restrictions on private well use and the applicant has determined that the maximum annual usage would be 40 acre-feet per acre per year, then it is feasible to assume the water value of our ten acres might also be calculated to equate to 400 acre-feet per year, or \$2.8 million per year in today’s market and \$36.4 million per year in 25-30 years in today’s U.S. dollars.

Questions

1. If the applicant “maximizes” their own water rights at 40 acre-feet per year, how would California know and how could they replace it once it’s gone?
2. If California charged the applicant for their water use, how much would it cost during both the construction and operational phases of the plant?
3. When the owner/operators of the HHSEGS trucks off the wastewater from the site, will they be able to make a profit - directly or indirectly - from the removal of the community’s most precious resource? If so, what will they give back in return?
4. Are there alternative statistics available regarding estimated water use in the U.S, California and Nevada besides the USGS report?
5. If the HHSEGS dries up our wells or contaminates our water, how will California or the HHSEGS owner/operator replace it?
6. Can residents hold California liable if they approve and permit an industrial plant in a residential/recreation zone they know may have the potential to destroy our water supply and the values of our homes?

Recommendations

- Because Las Vegas is the closest major city and also critically aware of the significance of water in the area, calculate the applicant's projected water use and waste treatment costs based on prices charged by the Southern Nevada Water Authority for both industrial and residential use. This would be useful for disclosing facts about the HHSEGS water use, such as:
 - Provides a basis and comparison value between what commercial enterprises pay and what the general populace pays for water use in the area.
 - Allows decision makers and the public to estimate today's current market value of the water being "given away" as well as projecting its worth over the life of the project.
 - Would help decision makers determine a financial value for water used by the HHSEGS in order to develop a plan for billing the owner/operator for their water use and wastewater.
- As a condition of the permit, require tamper proof well monitoring equipment to regulate water use.
- As a condition of the permit, charge the owner/operators of the HHSEGS site for their water use and wastewater to discourage waste and to prevent possible abuse of water consumption.

6. WATER CONTAMINATION: SEPTIC TANKS/LEACH FIELDS

Background

In Section 5.14, Waste Management, pp. 11, the applicant states:

"In addition, sanitary wastewater from sinks, toilets, and other sanitary facilities will be collected and discharged to an onsite septic tank with overflow into a leach field. The septic tank system will be serviced as needed by a sanitary service provider." (Emphasis added.)

Comments

In addition to the protection of the groundwater quantity, the protection of the groundwater quality should be **one of the highest priorities**. It does no one any good if mitigation measures keep water quantity intact but allow the water to become contaminated beyond usefulness.

It is common knowledge that groundwater contamination is a significant concern. The Pahrump Valley Water District as well as many other water districts that obtain their primary water from underground sources have been involved in various programs to educate the public on the dangers of groundwater contamination, which include septic tanks and leach fields.

The owners/operators of the HHSEGS and their employees will have ample opportunity to dispose of a wide variety of substances through their septic tanks and leach fields. There is no way to monitor and insure that contaminants are not disposed of via this system. To the contrary, despite potential promises that nothing hazardous or degrading will enter the septic/leach field system, there may be conflicts of interest regarding disposal methods of hazardous or contaminating substances.

For example, hazardous waste disposal will most likely require disposal fees. Therefore, it would be in the operators interest to reduce disposal fees by simply eliminating the substances down the drain and worry about getting “caught” later – if they ever get caught at all.

Even with the best of intentions and employee training, hazardous wastes and/or other contaminants may be inadvertently released via the septic system/leach field and eventually cause groundwater contamination.

As a result, a septic system with a leach field is not an acceptable option.

Questions

1. How can regulators insure hazardous materials and/or contaminants are not disposed of via the septic tanks and leach fields?
2. If hazardous wastes and/or contaminants are disposed of via septic tanks and leach fields, what is the estimated amount of time it will take for these contaminants to eventually seep from the leach fields into underground aquifers?

Recommendations

- Only authorize septic tanks that are completely closed with no leach fields. Remove wastes through sanitary service providers since the proposed system had already made some provisions for similar services.
- In the public interest, assess the feasibility of recycling the wastewater at a wastewater treatment plant and transport it back for reuse at the HHSEGS over the life of the project.
- As a condition of the permit, set limits on the amount of water that can be removed offsite based on operational requirements and develop monitoring standards that ensure offsite water removal stays within this limit over the life of the project.

WILDLIFE

“Some residential areas and their inhabitants are at a greater risk than the larger society from unregulated growth, ineffective regulation of industrial toxins, and public policy decisions authorizing industrial facilities that favor those with political and economic clout.”

*“Poverty, Pollution and Environmental Racism:
Strategies For Building Healthy And Sustainable Communities”*

A Discussion Paper by Robert D. Bullard, Ph. D,
Environmental Justice Resource Center, July 2, 2002

WILDLIFE

This submission represents some of the concerns and issues regarding the impacts of the Hidden Hills Solar Electric Generating System (HHSEGS) in relation to documents filed by Bright Source Energy to the California Energy Commission (CEC). All page numbers cited are from the pdf. format and do not represent the actual page numbers specific to the documents.

1. ALL SPECIES: POTENTIAL AND CUMULATIVE IMPACTS

Background

In Appendix 5.15D, Groundwater Interim Assessment, pp. 18, the applicant states:

“Average monthly precipitation rates are less than one-inch in the valley and corresponding evaporation rates range from approximately one-inch to over 15-inches per month (Nevada Rural Water Association 2010).” *(Emphasis added.)*

In Section 5.2, Biological Resources, pp. 36, the applicant describes one of the impacts of mirror washing to local vegetation.

“Weeds such as tamarisk rapidly germinate and grow in areas of moist soil such as those expected to occur in the solar fields after wash water is used to clean the mirrors. Aggressive weed control will be needed during construction, operations, and maintenance activities to minimize the germination, introduction, and spread of noxious weeds.” *(Emphasis added.)*

Comments

The applicant references aggressive weed control measures but only references a Noxious Weed Control Plan to be submitted prior to construction, not during the application process where direct, indirect and cumulative impacts are subject to public disclosure or review.

However, It is reasonably easy to foresee the “general” direct and cumulative impacts caused by the construction and operation of the HHSEGS and how these impacts will affect all natural cycles in the environment.

While it is obviously evident that all wildlife species will be significantly affected by the following chain of events, initially two species will be adversely affected even more so than others, these being local bat populations and desert tortoises.

Chain Of Events

Due to the amount of direct water routinely contacting soils on the project site from mirror washing activities and increased condensation from steel polls, moisture content will be high on the project site compared to the surrounding areas.

Increased moisture due to the continuous displacement of wash water during mirror washing activities will have the immediate affect of causing a dramatic rise in noxious and invasive plant species that are well-known to occur throughout the project area. If left unmitigated, they would quickly crowd out the native vegetation and ferociously spread to unprecedented proportions. However, the applicant is already well aware of this significant adverse affect and clearly states it will require **aggressive** weed control.

Due to the vast distance of the site, removing these plants by “hand” would require a full time gardening staff. This in turn would cause soil erosion and fugitive dust emissions to soar. However, the likelihood that HHSEGS administrators would chose to address this issue by removing invasive plants by hand is virtually non-existent.

This leads to the industrial mitigation measure of choice: spraying herbicides throughout the project area on a continuous basis throughout its operational lifetime.

Increased moisture will also be a strong attractant to insects. This will then increase all wildlife activities, including bats, birds, reptiles and small mammals attracted to the increased moisture + vegetation + insects = concentrations in the area of those that comprise the food chain.

Mitigation measures that include pesticides and herbicides to control the disruption of the natural cycle resulting from the projects impacts will then be directly injected into the natural cycles and will begin to poison soils, air, water and the food chain as well as cause either slow or dramatic declines in available resources (i.e, unnatural insect reduction due to pesticides, bat/bird decline due to lack of insects, reptile/small mammal reductions due to herbicides, etc.)

The desert environment is very fragile and often slow to recover, if recovery is possible at all. As animal populations are concentrated and then killed, recovery of populations can be difficult and slow going.

Desert creatures are also extremely sensitive to changes in moisture/water content in this “harsh” environment – because their lives depend on it. While industrial mitigation measures to control plant growth are being implemented, nothing is going to change the increased moisture content at the HHSEGS site compared to the surrounding environment and that fact alone will continue to attract desert wildlife of all kinds because they can smell the water.

This in turn will cause large percentages of local wildlife populations to be subjected to increased mortality risks through exposure of currently unknown chemicals that may affect them directly, such as toxic poisoning through consumption or indirectly, such as reduced reproductive rates and/or species abnormalities as herbicide/pesticide concentrations accumulate in the environment over the life of the project.

Questions

1. Why wasn't a Noxious Weed Plan submitted with the AFC files or any time over the last several months?
2. What measures describe "aggressive weed control" and what are their direct, indirect and cumulative impacts on the environment?
3. Since the applicant is depending on vegetative resources to act as a significant tool for erosion control at the site, what impacts will the aggressive weed control measures make on native vegetation and natural wildlife cycles?
4. Are there any wildlife species that will be more impacted than others due to the implementation of "aggressive" weed control measures, the Noxious Weed Plan or other mitigation measures that have yet to be disclosed, discussed or analyzed?

Recommendations

- The applicant should be required to disclose specific measures and plans deemed critical to mitigate significant adverse impacts to the environment to ensure data adequacy criteria has been met. This disclosure should include detailed definitions, descriptions and analysis of what "aggressive weed control" means, what a Noxious Weed Plan entails – including specific chemicals that will be introduced to the environment such as herbicides or pesticides -and any other mitigation measures deemed necessary. Only then can direct, indirect and cumulative impacts to the affected environment be appropriately reviewed and if possible, reduced and/or mitigated.

2. WILDLIFE: VEHICLE MORTALITY RATES

Background

According to Report of Conversation with Larry Levy, Acting Chief, Southern Inyo Fire Protection District on February 15, 2012, pp. 2, the following information on Construction (Traffic and Workforce) is reported.

"During the peak construction month (month 14), approximately 2,744 daily trips would occur. Of these daily trips, truck traffic accounts for 834 trips. The truck trips are assumed to be spread out equally throughout the day (from 6 a.m. to 6:00 p.m.). These trips are only the trips for the project site and do not include the trips related to the construction of the transmission line and gas line (as they are off-site). The number of workers per day range from 35 in month 29 to 1,033 in month 14. The highest numbers are predicted during construction months 13 through 16. The peak number of workers on-site is during month 14 with a projected 1,033 workers. Overall, there is a 1-year period where the number of workers is within approximately 20% of the peak."

Comments

There has been no discussion or analysis regarding the drastic rise in vehicle traffic and its impacts to local wildlife populations, mortality rates or recovery periods.

Although exact numbers are hard to come by, PEER has launched a multi-level [campaign](#) to reduce road-kill and raise public awareness as to the extent of the problem.

“Extrapolating from studies limited to a certain area or species, it is estimated that over one million vertebrate animals fall victim to automobile collisions every day. That’s one animal every 11.5 seconds [nationally].”

Public Employees for Environmental Responsibility
Stop The Carnage on America’s Public Lands

The Tecopa Road has turned into an important resource for local wildlife. The heat from the pavement is usually warmer than the surrounding environment and this directly attracts reptiles. The results of the differing temperatures also creates condensation, which attract small rodents and mammals as well as increasing native vegetation along the roadside. This in turn attracts birds of prey and carrion species.

Questions

1. What is the estimated mortality rate to insects, reptiles, rodents, small fur bearing mammals, birds of prey and other potentially affected species as a result of 2,744 daily trips on the Tecopa Road and SR 160 or traffic ranging within 20% of this for at least a year?
2. What is the estimated rate of recovery for species impacted by mortality due to high vehicle traffic on the Tecopa Road and SR160?
3. What plans have been developed to evaluate impacts and mortality rate to local wildlife due to dramatic increases in vehicle traffic during the construction phase of the project?
4. What mitigation measures, if any, can be implemented to reduce impacts to wildlife, increased mortality rates and recovery efforts?

Recommendations

N/A

3. UNIQUE WILDLIFE HABITAT

Background

In Section 5.2, Biological Resources, pp. 39, the applicant states:

“Potential impacts from construction and demolition activities on resident nesting birds could occur from temporary construction noise and clearing and grubbing of site. It is anticipated that the project will result in the permanent loss of potential foraging and nesting habitat for some migratory and resident birds. However, this loss is expected to be a less-than-significant impact because of the vast amount of similar habitat in the surrounding vicinity.” (Emphasis added.)

Comments

The applicant is incorrect in their assertion that there is a vast amount of similar habitat. The Hidden Hills area and the surrounding mesquite groves are unique to the valley and provide high quality wildlife habitat.

To help illustrate this point, the Southern Nevada BLM’s Resource Management Plan had identified Stump Springs, located just few miles from the project site, as an Area of Critical Environmental Concern. Though designated as such for its Cultural and Archaeological values, the area was also acknowledged for its important contributions to wildlife habitat due to the surrounding mesquite woodlands.

According to the LV RMP ROD under Management Direction, FW-3-a, pp. 5, BLM stipulates they will, *“Manage mesquite and acacia woodlands for their value as wildlife habitat in the following areas: Amargosa Valley, Meadow Valley Wash, Moapa Valley, Pahrump Valley, Stewart Valley, Hiko Wash, Piute Wash, Crystal and Stump Springs, or any other areas identified as being of significant wildlife value.”*

Much of the mesquite groves are sited on sand dunes (though not all). In addition to the obvious cover, shade, and protection they offer, the composition of the sand creates variations in temperatures from the surrounding soils. This in turn causes small amounts of condensation to be created between daytime/nighttime temperature changes. This small, but significant water source is utilized by small rodents and fur bearing mammals, which in turn are the major food source for birds of prey and other predators in the area.

Questions

1. Given the fact that the mesquite groves in Pahrump Valley are situated within and directly adjacent to the Hidden Hills project site and the Tecopa Road, what is the projected percentage of habitat loss, either directly or indirectly, to these unique wildlife habitats?
2. With Pahrump development situated to the north, where is the next closest area the unique landscape of Hidden Hills and the mesquite groves are reproduced?

Recommendations

N/A

4. **SPECIES OCCURRENCE: UNDOMESTICATED BURROS**

Background

In Section 5.2, Biological Resources, pp. 6, the applicant states:

“Wild Horses and Burros: Protection, Management, and Control (16 USC §1331; 43 CFR §4700): The Wild Free-Roaming Horses and Burros Act of 1971 protects wild, free-roaming horses and burros from capture, branding, harassment, or death. Feral burros were observed in the HHSEGS area. Wild, free-roaming herds of horses or burros will not be allowed onsite following project construction; therefore, provisions of this Act are not applicable to this project.” (Emphasis added.)

Comments

Setting aside the legal arguments regarding the applicants’ contradictory statements, (though they are federally protected from capture, branding, harassment or death/will not be allowed on site but providing no description of how they will accomplish this without violating the law), I find it very hard to believe that burros were observed in the HHSEGS area.

However, if burros were seen in the vicinity of the HHSEGS, then they are drinking out of a relatively abundant nearby water source since burros require approximately 6 gallons of water per day per adult.

Since the applicant did not provide - nor has Staff requested – any additional information, it is unknown when, where or how many burros were sighted. This then makes it impossible to determine where the burros are acquiring water from, its relative abundance in the area and what kinds, if any, of riparian areas, wildlife habitat or species may be affected by the construction and operation of the HHSEGS.

Finally, while the applicant is apparently trying to absolve themselves from any legal restraints regarding potential burro populations in the area as conveyed through the citing of the Wild Free-Roaming Horse and Burro Act, they should also be aware that California Fish and Game Code, [Section 4600](#), has very similar language and restrictions regarding any undomesticated burros found within the state. As such, treatment of burros within or surrounding the HHSEGS project site should be in conformance with their protected status.

Questions

1. When, where and how many burros were sighted in or around the HHSEGS project site?
2. Is the applicant aware of any water source(s) being utilized by the burros? If so, what is the location(s)?

3. Wouldn't a water source(s) being utilized by burros also be a critical water source for other wildlife in the area?
4. What other kinds of species are utilizing this water source(s) and/or habitat?
5. What impacts will the HHSEGS have to water sources in the area and the species utilizing them?
6. Since the applicant has stated burros will not be allowed on the project site, how will they accomplish this without violating Section 4600 of the California Fish & Game Code?

Recommendations

- Provide survey information and data regarding referenced burro sightings in the HHSEGS area.
- Disclose known potential water sources as these are critical wildlife habitat areas that may be significantly impacted by the construction and operation of the HHSEGS. If burro water sources are currently unknown, a survey should be conducted to determine the water source of the burros in order to identify any other species that may also be utilizing this water in order to evaluate direct, indirect and cumulative impacts.
- Disclose, discuss and analyze potential impacts to species utilizing water sources and habitat that may be affected by the HHSEGS.

5. SPECIES OCCURRENCE: BATS

Background

In Data Request, Set 1C (#77-96), Technical Area: Biological Resources, Other Potentially Occurring Wildlife Species, Data Request #81, pp. 6, CEC staff requests additional information on potential species occurring in and around the project area; there are several species of bats cited as potential candidates.

In the Applicants Data Response Set, 1B, TN63056, (12/05/2011), Effects of Power Towers on Bat and Bird Species, beginning on page 14, a discussion occurs between CEC staff and the applicant regarding data requests and responses for bat species in the area. Subject matter spans type of bat species, Special Species of Concern, type of bat surveys, habitat and foraging requirements, monitoring, etc. As a result of those discussions, as well as personal experience in the area, there are several identified issues necessary to address.

Comments

A variety of bat species are referenced as potentially occurring in the area throughout the planning documents and Staff discussions. These include Occult little brown bat, Western small-footed bat, Townsend's Big-eared bat, Pallid bat, and the Brazilian Free-tailed bat.

Differences in roosting sites, habitat and foraging areas are listed as varying depending on the species. Though no bat species of any kind were identified in the applicants' surveys within a 10-mile radius of the project site, some species were identified as potentially occurring within the project vicinity. However, each species was dismissed by the applicant as potentially being affected by the HHSEGS for one reason or another.

Common reasons for dismissal included, potential day roosts too far from potential foraging areas, no open water sources, limited prey availability (insects) and a general lack of habitat in the immediate vicinity.

According to the bat surveys conducted between March 23rd and April 14th, 2011, no bats were recorded in the area. Also, applicant speculated that if there *were* any local bat populations, they may now inhabit abandoned trailers and alluded to this as a relatively new phenomenon, if there were indeed any resident bat populations at all.

Historical Bat Presence/Personal Account

My parents put in an above ground pool for us kids the second year we arrived. An unintended consequence of the pool turned out to be a great attraction for the areas bat population. As a result, for several years in the summer during twilight, we use to watch the bats fly in by the scores and "scoop up" water to drink. It's hard to get photos of bats because they always showed up with almost no light left - but we did have one exception.

Sometimes the bats "missed" and would get stuck in the pool. We would then fish them out, lay them out to dry and they would be gone by morning. Sometimes, we missed some and they drown.

On morning, my Mom found a bat in the pool that was still alive, so she fished her out and laid her on the pool pump house to dry. Still soaking wet, the bat immediately gave birth, then died.

My Mom took the baby bat in the house and began feeding it milk through a baggie; a winter woven beanie becoming its new nest. Bazil D' Bat lived about four months, surviving on milk and later, melon juice from our gardens. His demise came after my Mom grew concerned that he was getting too big for just a liquid diet and crushed up some Kix© cereal with his milk to supplement his food. Unfortunately, we figured out too late, this was inappropriate food for a bat and Bazil died shortly thereafter.

I can assure you that bat populations were thriving in the 1970's and they continue to "forage" on our property to this day, despite the absence of the above ground pool.



Bazil D' Bat being showcased to some friends in the mid-70's.

Suitable Habitat

The applicant included recorded bat sightings in areas near the Kingston Mountain Range as well as near Emigrant Pass, approximately 7 miles away - but no actual surveys were conducted on the hills nearest to the HHSEGS site or within the Nopah mountain range. If they had, the surveyors would have found ample evidence of resident bat populations.

The hills and mountains (such as the Nopahs) surrounding the area are filled with numerous caves, crevices, nooks, crannies and often, volcanic type rock. Throughout the years, we have gone on numerous recreational hiking expeditions and evidence of bat roosts - such as bat droppings – have been everywhere we ever went.

There are bats here and they have been foraging in our valley for a very long time!

Bat Surveys and Monitoring

The Western small-footed bat was cited as hibernating November through March. No description of hibernation patterns were cited for other bat species listed as potentially occurring in the area so it is unknown what hibernating cycles might apply to them.

However, the applicant did the bat surveys in late March and frankly, I think this was too early – at least for our area. The bats show up in the summer, not early spring.

I also have concerns regarding “how and where” the surveys were performed as well as where the current bat monitoring station is located.

With respect to the surveys, no locations are provided as to where they were conducted. Also, the applicant has repeatedly expressed unwillingness to include the “Nevada side” of the affected environment and has been quick to point out to CEC Staff their jurisdictional limits. Therefore, it is currently unknown where surveys were conducted, if they were conducted anywhere on the “Nevada side”, if any of the local mesquite groves were surveyed or if any water sources were included either.

With respect to the recently established bat monitoring station at their meteorological site, I would laugh if it weren’t so tragic. The meteorological site Bright Source has established is sitting out in the middle of nowhere. It might be great for weather but the chances of it recording bat data, much less accurate bat data, is mighty slim.

Would this be the kind of terrain used to survey bat populations last spring as well?



Bright Sources meteorological station for the HHSEGS.

As for current monitoring of bat populations in the area, the applicant began in the winter of 2012 at the request of CEC Staff and will be supplying them with quarterly reports, none of which has yet to be fully recorded, much less received.

Though the height of bat population and activity will occur June thru August, 2012, the CEC Staff is scheduled to file their Final Staff Assessment on June 15, 2012. In other words, not a single scrap of monitoring data will be made available for Staff Assessment (dubious though this data may be) or included in the public record. The bats don't even have one shot to make their presence known, for data to be recorded without significant disturbances or before significant habitat loss begins.

As it stands, there is no possible way sufficient data can be gathered, much less analyzed, to determine actual impacts and trends to local bat populations that might result from the construction and operation of the HHSEGS.

Bat Food Sources

As for local insect populations (food sources), it varies depending on rainfall; simply put, wetter years result in more insects. The applicant's assertion that the area has a low insect population (compared to what?) based on limited to no survey data is inadequate for review purposes.

Additionally, historically the area had natural springs that have mostly now dried up due to man-made draw down on the aquifers. In turn, these were replaced with man-made water sources from local residents.

Open water sources are still available directly adjacent to the project site as well as insect concentrations due to community cultivation, gardens, and trees.

Given the difference between the two environments as shown through the photos, if you were a bat, where would you go?



Potential and Cumulative Impacts

Bat populations that either reside or forage in the vicinity of the HHSEGS will be significantly and adversely affected by the "Chain of Events" as described at the beginning of this submission, since impacts to insects and water directly affect their life cycles.

Questions

1. Did CEC Staff or wildlife specialists provide any input or suitability criteria to the applicant regarding site placement of the bat monitoring station?
2. Since CEC Staff raised no objections to the applicants' location of the bat monitoring station, why is its placement considered appropriate for accurate recording and data compilation of bat activity and population density?
3. Since CEC Staff will issue their Final Staff Assessment before any records or species identification for the area is available during prime bat presence periods or prior to significant habitat disturbances, how does Staff propose to evaluate the impacts of the HHSEGS project on local bat populations?

Recommendations

- List hibernating periods for all bat species that may potentially occur in the area as only some bat species are identified as requiring hibernation.
- Provide locations and survey sheets for bat surveys initially conducted between March 23rd and April 14th, 2011. Explain why this time period was considered appropriate for surveying bat presence.
- Re-evaluate the bat monitoring station placement. Consult wildlife specialists regarding areas site specific to the HHSEGS project site – including the Nevada side of the border - to determine if other locations such as possible water sources would be more suitable for fair and accurate data collection for bat activity, population density and critical foraging periods. Also, consider establishing additional monitoring stations to evaluate scope of population densities and foraging areas.
- Request additional survey efforts be made to locate potential bat roosts in the hill the Tecopa Road winds around (West/Southwest of the project site) as well as the area of the Nopah Mountain Range behind this hill. Photos of bat roosts found in these areas will provide evidence of bat presence and perhaps provide species identification as well.
- Describe how CEC Staff intends to evaluate the direct, indirect and cumulative impacts from the HHSEGS to local bat populations when there will be no relevant local data available prior to the issuance of their Final Staff Assessment.
- Since natural, undisturbed bat activity data is not available, describe how CEC Staff will be able to evaluate the severity of impacts or trends, if any, that may result from significant changes to the environment as a result of the construction and operations of the HHSEGS and over the life of the project.

- Disclose plans and mitigation measures that will be used to reduce impacts to local bat populations such as those outlined in the “Chain of Events” segment of these comments.

6. LIGHTING: NIGHTTIME INSECT ATTRACTIONS

Background

In Section 5.2, Biological Resources, pp. 41, applicant states:

“Additionally, certain lighting may attract insects, which in turn may attract birds such as nighthawks and bats to forage. Lighting that is shielded and pointed downward and away from the habitat outside of the project area minimizes impacts to nesting birds and other nearby wildlife, and reduces the potential for avian and bat attraction and contact. Also, night lighting in high illumination areas not occupied on a continuous basis will have switches to allow them to be turned off when not in use”.

Comments

In the summer, the prime time to work on projects is at night due to the decreases in temperature. However, this has proved impossible due to the large amounts of insects nighttime lighting attracts. They get in your eyes, mouth, ears and nose – and they don’t go away if a light is on!

Therefore, I totally disagree with the applicants’ statements based on my own experience. Insects are highly attracted to any light source during the summer months, regardless of where “you point it”. Lights will be a major player in wildlife disturbances and natural cycles. Increased moisture due to the constant mirror washing and nighttime lighting necessary to wash mirrors (as well as other sources), will be a strong attractant to insect populations and all species who feed on them will be affected.

Questions

1. How many light sources and what kind of lighting will be used during both the construction and operational phase of the HHSEGS?
2. How much light will each of the heliostat’s give off at night due to the interior illumination system and how will this affect local wildlife since this lighting most likely can’t be turned off and will span approximately 5 miles?

Recommendations

- In any instance where feasible, use red lighting since insects are not attracted to it.

7. SPECIES OCCURRENCE: TARANTULAS

Background

In Data Request, Set 1C (#77-96), Technical Area: Biological Resources, Other Potentially Occurring Wildlife Species, Data Request #81, pp. 6, CEC staff requests additional information on potential species occurring in and around the project area.

Comments

Staff is required to evaluate a thorough list of species that may be affected by the project. Preliminary review of both staff's data set request as well as the referenced NEMO planning area revealed two endemic species of arachnids recognized as distinct species of tarantula's have yet to included or analyzed as potentially occurring at the HHSEGS project site.

In the fall, this area use to host a huge tarantula migration, especially in October. Tarantulas by the dozens would cross the Tecopa Road and we were always astounded at both their sheer numbers (where did they come from?) and wondered why were they crossing in both directions?

Unfortunately, over the years the tarantula phenomenon has been steadily declining.

During the recent HHSEGS workshop the CEC hosted in Tecopa on January 18, 2012, I mentioned the declining tarantula population during the public comments. Shortly thereafter, a man introduced himself as the Community Outreach Coordinator for the St. Theresa Mission and assured me he had seen 400-500 tarantulas that fall. Having visited the area three times in October, I had not seen one (though my family had seen a couple).

Unfortunately, the tarantula population in the area has most likely never been quantified and now we are only left with, "He-said, She-said" anecdotal reports.

When I first learned of the proposed HHSEGS site, one of the first "wildlife" concerns that came to mind was what sort of impact would it make on what might be left of the tarantula migrations, which was always an important wildlife event for the area. This in turn caused me to do a quick research project on tarantulas and I learned two things that may have significance.

The first is, according to an article published in the 1997 Journal of Arachnology 25:137-176, titled, "[Theraphosidae of the Mojave Desert West and North of the Colorado River \(Araneae, Mygalomorphae, Theraphosidea\) by T.R. Prentice](#)", two new species of *Aphonopelma* from the Mojave Desert are described, one of which was found occurring in San Bernardino County.

It is not known if the tarantulas within the project area are those identified as the new species, *Aphonopelma Mojave*, what the population density use to be or how dramatic the decline of tarantula populations has been over these decades due to any lack of data on historic population estimates.

Questions

1. What department or agency is responsible for the collection of data and oversight regarding tarantulas?
2. Is there any information available regarding local tarantula species, populations and trends?
3. Is there any additional data regarding *Aphonopelma Mojave's* territory, habitat, population densities, or trends?

Recommendations

- Reasonable efforts should be made to determine if the tarantulas in the project area are part of the *A. mojave* population as well as trying to provide an estimate of the remaining populations. This could also be used to establish an initial database to measure long-term impacts to species populations over the life of the project.
- If local tarantula populations are not included in the *A. Mojave* species, species genus should be identified as well as all relevant information regarding territory, population density and trends.

8. TARANTULAS: REPRODUCTION

In Section 2.0, Project Description, pp. 28, the applicant states:

"Initially, 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)." (Emphasis added.)

In Section 5.7, Noise, pp. 13, the applicant states:

"An unexpected and unanticipated imbalance in the power plant equipment could contribute to ground vibration levels in the vicinity of the equipment. The equipment is, however, well balanced and designed to produce very low vibration levels throughout the life of the project. Furthermore, vibration-monitoring systems installed in the equipment are designed to ensure that the equipment remains balanced. If an imbalance occurs, the event would be detected and the equipment would automatically shut down." (Emphasis added).

Comments

The second thing I learned during my research on tarantulas was why the tarantulas were crossing the road in both directions during the "migration". Turns out, only the males are migrating as they leave their own territory to search for females, who stay put at their respective homes waiting for a new suitor. One of the key elements in this reproductive dance is the male responds to vibrations as they search for a mate.

Setting aside the other disruptive noises that will be associated with the HHSEGS, there are two elements about its construction and operations that could have an impact on the remaining tarantula populations – especially considering its cumulative impact over the life of the project.

Now I’ve tried to imagine what kind of sensitivity a tarantula would have to have to be able to detect vibrations across the desert floor that leads them to a female. Perhaps, this explains why the tarantulas are attracted to the road – because of vehicle vibrations. However, both ideas have made me wonder about the vibrations the HHSEGS will introduce to the area and what sort of impacts it may make to the tarantulas reproductive requirements.

With respect to the use of vibratory technology to insert the pylons, it can be argued that this will be a short term impact to tarantula populations, affecting only one or perhaps two mating seasons.

However, the vibrations resulting from the turbine engines over the life of the project may be a different sort of story all together affecting 25-30 years of tarantula mating seasons and potentially causing significant impacts to their ability to reproduce.

Currently, there is no data or information regarding the levels, distances and potential impacts of ground level vibrations resulting from the HHSEGS on any aspect of the environment.

Questions

1. Is there any information, data, or studies available regarding the affects of man-made vibrations on tarantulas and their reproductive cycles?
2. What kind of “vibratory technology” will be used to insert the pylons?
3. What kind of vibratory ground impacts does the “vibratory technology” have? For example, what are the vibration levels, how far does each level extend and what is the maximum distance this vibration travels before no ground vibrations are detectable in any measurement?
4. How many hours per day will the turbine engines operate?
5. What is the level of ground vibrations that will result from “normal” operations of the turbine engines? Also, how far does each vibration level extend and what is the maximum distance this vibration travels before no ground vibrations are detectable in any measurement?

Recommendations

- The applicant should provide a reasonable amount of data regarding vibratory technology and impacts during the construction and operations phase of the project including levels, distances and potential impacts to the environment with a special emphasis on wildlife, seismic activity due to the proximity of known fault lines at the project site as well as potential disturbances to the human environment (i.e., daytime/nighttime disturbances).

9. DESERT TORTOISE: HABITAT RANK

Background

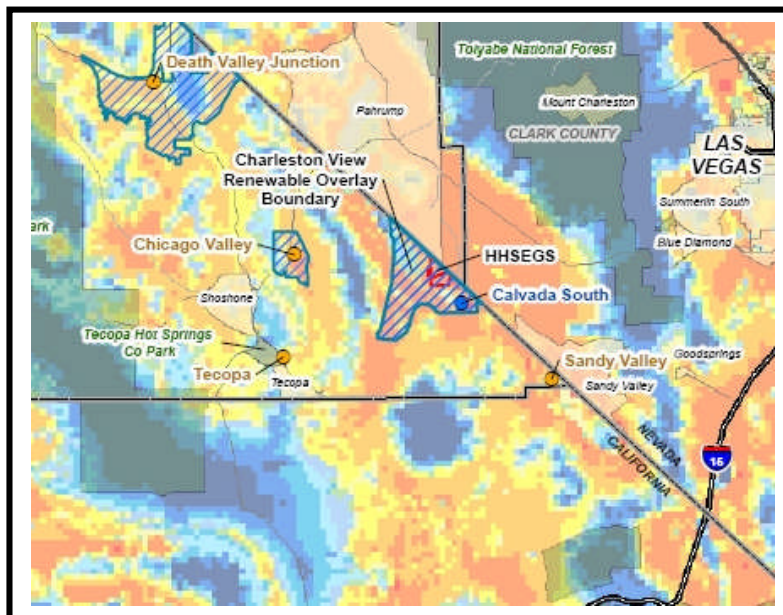
In Section 6.0, Alternatives, pp. 9, the applicant describes why the proposed HHSEGS site was chosen over alternative sites:

“The site has special-status plants, but contains low density populations of desert tortoise and low-quality tortoise habitat.” (Emphasis added.)

In Appendix 5.2E, Jurisdictional Wetlands, JD Form Information, pp. 185, handwritten notes by the surveyor under wildlife stated:

“Many tortoise burrows.”

In Section 6.0, Alternatives, pp. 29, the applicant provides a map of the proposed HHSEGS project site overlaid with desert tortoise habitat as modeled by USGS. According to the legend, the project site will be located on and surrounded by the highest-ranking desert tortoise habitat on the USGS scale (represented by areas highlighted in bright orange). Highest-ranking habitat also includes the area surrounding the Tecopa Road that leads into the proposed site.



Questions

1. Since the desert tortoise habitat ranking by the USGS model is the highest-ranking possible, how can the proposed project site be considered “low quality desert tortoise habitat”?
2. Given the fact that the Tecopa Road cuts directly through the highest-ranking desert tortoise habitat in the area, what will be the impacts of high vehicle traffic to desert tortoise and how can they be mitigated?
3. How can the applicants’ statement of low-density tortoise population at the proposed project site be reconciled with the surveyors notes stating there are many tortoise burrows at the proposed site?
4. What is the projected radius and percentage of direct and indirect impacts to desert tortoise populations, habitat loss and habitat degradation if the HHSEGS site is approved?
5. What is the projected cumulative impacts to desert tortoise populations, habitat loss and degradation over the life of the project? For example, Inyo County is projecting significant increases in services supplied to the area as a direct result of the HHSEGS, which in turn is causing projections of increased growth and development in the area.

Recommendations

- Provide a realistic assessment of direct, indirect and cumulative impacts to desert tortoise populations and habitat as a result of the HHSEGS. This should not be limited to site specific impacts ending at the project sites boundaries but should also include cumulative impacts such as construction of the required gas and transmission lines through adjacent high quality desert tortoise habitat, high vehicle traffic on the Tecopa Road during the construction phase as well as the critical necessity of road construction and expansion of the Tecopa Road required to accommodate the high volume of trucks over the construction phase of the project.
- While it is understandably difficult to fully predict, some measure of analysis of long-term impacts should be incorporated in the analysis. This should include projected incremental increases in residential and commercial development for the area, increased vehicle traffic as well as infrastructure requirements over the life of the project. For example, modeling of growth at 4% a year in each of these related areas.

10. DESERT TORTOISE: PRESERVES

Background

In the Applicants Response to Data Adequacy Review, 2011-09HH, pp. 33, a conversation is presented regarding potential desert tortoise mitigation measures. Here, Rich York is quoted as stating:

“It is not taboo anymore to put them into preserves (might be allowed).”

Comments

The statement referenced above seems to sum up the totality of how the Desert Tortoise recovery and habitat management has been treated since they were first listed in 1994. Since then, I have repeatedly read agency proposal after proposal that authorizes incremental and continued habitat encroachment, displacement, relocation, juvenile pens, and “preserves”.

I have attempted to find the cumulative habitat loss since the initial ESA listing in 1994, but not surprisingly, this information is not available.

However, in 2011, USFWS released a [Revised Recovery Plan](#). Here, USFWS provides a small example of habitat loss by citing, *“As of November 2010, the area of approved and pending solar and wind-energy applications on public lands exceeds 100,00 hectares (247,000 acres).”*(pp. 36) This number is most likely even higher today given fact of the fast tracking alternative energy sites have received.

In discussion regarding how to assess impacts to desert tortoise, USFWS also states: *“....although some impacts, such as habitat loss, are fairly straightforward in that they eliminate populations completely.”* (pp. 58)

Unfortunately, USFWS failed to release a section on how to deal with desert tortoise habitat loss, degradation and impacts due to the large-scale renewable energy drive that is bombarding the Southwest. They did, however, give some treatment to California and specifically, to the role the CEC has played in renewable energy approvals.

“At this time, we do not have information on renewable-energy projects proposed on private lands within the range of the Mojave population of the desert tortoise outside California, but according to the California Energy Commission, more than 51 solar projects, totaling 5,475 MW, had been proposed on private lands.”

And,

“Conflicts between energy development and the desert tortoise have been recognized at least since 1986 (Pearson 1986). A typical 250-400 MW solar energy project requires about 1,200 hectares (3,000 acres). The land is typically contoured and fenced, resulting in habitat loss and availability for other uses. While developing utility-scale solar projects on public lands could help achieve the national and regional energy goals, it would also require large reallocations of land and water resources and have significant environmental impacts. Many of these impacts directly affect the desert tortoise and desert ecosystems.” (Emphasis added.)

In an article by Basin and Range Watch, "[US Fish and Wildlife Service Grapples With Renewable Energy: Recovering The Tortoise?](#)" (September 8, 2011), a press release from the Center of Biological Diversity is cited stating:

New "Recovery" Plan Weakens Desert Tortoise Safeguards

"Instead of upgrading protections for the Mojave's desert tortoise, the species' new federal recovery plan makes matters worse for the ancient, threatened reptile. Until the new plan was released last Friday, the tortoise's recovery plan – a document laying out steps and criteria for removing species from the endangered list – hadn't been updated since 1994. And now, while tortoise populations continue to crash, the revised plan fails to address some of the direst threats to species, including livestock grazing, off-road vehicles, nonnative plants, climate change and energy development."

"The Center for Biological Diversity has been working to save the desert tortoise since the 90's, when we filed our first appeals to stop harmful livestock grazing in tortoise habitat. So Center biologist Ileene Anderson has good authority to compare the old and new plans: The new recovery plan only exacerbates the ongoing problem of desert tortoise recovery, which has been the failure to implement most of the science-based recommendations in the old plan. This plan simply doesn't cut it." (Emphasis added.)

Questions

1. What is the current cumulative total of desert tortoise habitat loss and degradation the CEC has overseen and authorized in the last ten years?
2. How many times has the CEC authorized displacement and translocation of desert tortoise as a direct result of approving energy production sites in California over the last ten years?
3. What is the cumulative total of desert tortoise mortality that is a direct or indirect result of energy production sites approved by the CEC in the last ten years?
4. Based on prior desert tortoise mortality rates as a direct or indirect result of previously approved industrial, military, energy production sites, etc., what is the projected mortality loss to desert tortoise populations affected by the proposed HHSEGS site?
5. Since discussion between CEC Staff and the applicant have been centered around translocation of desert tortoise located directly on the project site, what is the estimated number of desert tortoise that will be directly impacted through translocation if the HHSEGS site is approved?

6. Since discussions between CEC Staff and the applicant have predominately centered around finding suitable relocation sites, mostly acknowledged on the Nevada side of the proposed project site, what will be the impacts to the trans-located desert tortoise as a result of the construction and installation of the gas pipeline, the transmission line, the dramatic increases in vehicle traffic on the Tecopa Road during the construction phase of the project as well as the necessity of repaving and widening the Tecopa Road prior to its construction?
7. Have any discussions or review of direct, indirect or cumulative impacts to desert tortoise and/or habitat degradation been incorporated in analysis regarding the “Chain of Events” (chemical dust suppressants, herbicides, pesticides) as outlined earlier in these comments?
8. Have any discussion or reviews of direct, indirect or cumulative impacts to desert tortoise and/or habitat degradation been incorporated in analysis regarding the “Chain of Events” in conjunction with chemical dust suppressants, soil stabilizers, and emissions output resulting from the construction and operation of the HHSEGS? If so, where are they located for public review?

Recommendations

- If the desert tortoise is ever going to have any hope of recovery and stabilization, existing habitat must be preserved. Consider relocating solar energy production to already disturbed sites such as EPA Superfund sites, closed landfills, military installations or outside communities that have already eliminated or degraded desert tortoise habitat beyond repair.
- Disclose the direct, indirect and cumulative impacts to desert tortoise populations and habitat as a result of energy production authorizations in California over the last ten years.
- Disclose, analyze, discuss and review the cumulative impacts to desert tortoise and habitat within the region as a direct result of the HHSEGS if it is approved, both during the construction and operational phases as well as over the life of the project. Given the fact that the CEC has sole jurisdiction over the HHSEGS and its authorization will be a direct result of this, the CEC should not be allowed to excuse themselves from disclosing, analyzing and mitigating the impacts of the HHSEGS to the surrounding environment in its entirety. Therefore, a cumulative impact analysis should also include impacts to desert tortoise resulting from the construction of the gas pipeline, the transmission lines, the increased vehicle traffic, repaving the Tecopa Road – including the “Nevada side” that will be directly affected by the CEC decision - and increased development resulting from infrastructure additions to the area.