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SUBJECT: Proposed Solar Millennium Ridgecrest Solar Power Project
CEC Docket Number: 09-AFC-9
BLM Docket Number: CAC-49016

Dear Sir and Madam:

Thank you for the opportunity to comment on the Staff Assessment and Draft Environmental Impact Statement (SA/DEIS) prepared for the proposed Ridgecrest Solar Power Project (RSPP)[1]. The staff that prepared this document should be commended for the significant effort required to analyze and assemble this document. I have several points below that I believe should be addressed as staff moves forward in their process.

1. While I don't understand the CEC / Bureau of Land Management (BLM) processes as well as I should, I was hopeful that "scoping comments" would be more obviously integrated into the SA/DEIS. For example, comments made by myself with respect to the Heat Transfer Fluid (HTF) / propane use[2] and comments made by Tom Budlong with respect to the actual average power rating of the RSPP[3] don't appear to be addressed in the SA/DEIS. Clearly letters are posted to the CEC website and there is a brief discussion in Appendix 1 of the SA/DEIS PDF pages 1470 – 1481. With all due respect, this is insufficient. Perhaps a table could be generated that links the contents of a letter to appropriate document sections. Note this will be a significant undertaking as many letters address more than one issue.
2. In my earlier letter, I pointed readers to a National Renewable Energy Laboratory (NREL) software tool called Solar Analysis Model (SAM)[4]. I am unaware of any discussion that the applicant and/or CEC have analyzed or plan to analyze the RSPP using this tool. I fail to understand how a system level understanding of the RSPP can be achieved without such a tool. Note that I'm surely not insisting that this is the only tool available to conduct an analysis, but (a) it is the only one I am aware of, (b) it is available for free to the public, and (c) it was developed by NREL, the "only federal laboratory dedicated to the research, development, commercialization and deployment of renewable energy and energy efficiency technologies[5]." Perhaps the SAM configuration file (*.zsam) for the RSPP could be posted to the CEC website to allow interested folks to study the RSPP along with the CEC and conceivably NREL. Note that even the SAM tool alone cannot provide a complete system

[1] http://www.energy.ca.gov/2010publications/CEC-700-2010-008/CEC-700-2010-008.PDF
[2] http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/others/2010-01-14_scoping_comments/Mark_Decker_Public_Scoping_Comments_TN-54930.pdf
[3] http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/others/2010-01-14_scoping_comments/Tom_Budlong_Scoping_Comment_TN-54926.pdf
[4] https://www.nrel.gov/analysis/sam/
[5] http://www.nrel.gov/

level understanding of this project; there is no way to incorporate the massive construction costs or escalating operational costs. To this latter point, I strongly believe if this project is approved and constructed as presently envisioned, potable water costs in this basin will significantly increase over the alleged 30-year project life.

3. I think the public has a right to know basic financial data for the RSPP as it currently is proposing to make use of a gift of US Taxpayer funds. In a very real way, the US Taxpayer will own 30%[6] of the RSPP under the auspices of 1603 grants and the American Rehabilitation and Recovery Act (ARRA) and furthermore, the Department of Energy (DOE) will apparently supply very low interest loans (PDF page 200 of SA/DEIS). Of course, as presently defined, the applicant would have to start construction by 31 Dec 2010 to qualify for ARRA funds. While it is very unlikely that SM will meet this deadline, the deadline may be extended by S2899[7] to 2012. Even if the applicant ultimately chooses not to apply for ARRA grant money, the consumers of the RSPP generated power should know something about SM / CEC / CA ISO / SCE / CPUC / ?? negotiated power rate structure. There is considerable evidence from Spain that "green energy" produced power results in increased rates being passed to the consumer[8] – a moderately alarming conclusion from reference 8 is cited below.

   > "The price of a comprehensive electricity rate (paid by the end consumer) in Spain would have to be increased 31% to being able to repay the historic debt generated by this rate deficit mainly produced by the subsidies to renewables, according to Spain's energy regulator. … … Spanish citizens must therefore cope with either an increase of electricity rates or increased taxes (and public deficit), as will the U.S. if it follows Spain's model."

5. The principle employer in the region is the Naval Air Warfare Center Weapons Division (NAWCWD). In connection with NAWCWD as well as other surrounding military properties, there is controlled airspace over much of the surrounding region including the airspace over the proposed RSPP. While there has not been a severe aircraft / weapon accident off-center boundaries since 1979, there is historical precedent for such a thing in the form of Faller elementary school[9]. If such an accident occurs within the RSPP, there will be a fire. Much of the local community lives down prevailing wind from the RSPP. The SA/DEIS does not address the issue of community exposure to burning HTF in C.14 "Worker Safety And Fire Protection".

6. There has been essentially no documented appreciation of the magnitude of cultural resources primarily pointed out by both Mary Jane McEwan[10] and Matt Boggs[11]. The SA/DEIS does not provide present status or path forward on two mandatory consultations: Advisory Council on Historic Preservation (ACHP) and California Office of Historic Preservation (CA OHP) both related to Section 106 of the National Historic Preservation Act (NHPA). In fact section C.3.4.4.1.1 states: "Ground disturbance accompanying construction at a proposed plant site … has the potential to directly impact archaeological resources, unidentified at this time." As the lead NEPA agency, when will the BLM conduct both a proper survey and analysis of the cultural issues identified in the Boggs & McEwan letters?

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[6] http://www.energy.gov/recovery/renewablefunding.htm#SOLAR

[7] http://www.govtrack.us/congress/bill.xpd?bill=s111-2899

[8] http://www.juandemariana.org/pdf/090327-employment-public-aid-renewable.pdf

[9] http://www.chinalakealumni.org/Accidents.htm

[10] http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/others/2010-01-14_scoping_comments/Mary_Jane_McEwan_Scoping_Comments_TN-54940.pdf

[11] http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/others/2010-01-14_scoping_comments/Matt_Boggsr_Public_Scoping_Comments_TN-54933.pdf

7. The CEC / BLM have allegedly elected not to enter the water use / rights debate that is documented in many letters found under the "intervenor documents" section on the CEC RSPP website as well as the CEC's own documents, such as TN-54597[12] (PDF page 8). The "greater good" may be served by installing this power plant, but the "greater good" will in no presently defined way come to the aid of local residents when the water quality / water level (the need to deepen wells) crisis hits. While SM should not be punished for the overdraft conditions that already exist in this groundwater basin neither should the residents be punished by adding this industrial appropriator of high-quality, potable water. Who will offer ARRA type funds to build a large-scale desalination plant to accommodate the inevitable intrusion of non-potable water? Of course, a desalination plant will only be readily useable by existing customers of the Indian Wells Valley Water District (IWVWD). While IWVWD customers represent most of those in the basin, the remaining 3 to 4% (about 350 wells per IWV Cooperative Groundwater Management Group) have an overlying water right that is recognized as being higher in legal stature than that of the IWVWD who only has an appropriative water right. Further, those 350 well owners cannot make use of a desalination plant as they, by definition, are not connected to the IWVWD distribution network.
8. The applicant is forecast (by the CEC) to consume approximately the present annual use by the IWVWD in some time span ranging from 18 to 28 months. There are three "mitigation" schemes proposed to enable the RSPP. Two of them involve reducing water consumption among existing IWV consumers. It is totally unacceptable to claim reducing consumption from existing water users is a mitigation for a massive new industrial appropriator of water. The "cash for grass" and "fallowing" schemes should be used to extend our dwindling supply of high quality water and not to enable this massive project. If either of these "mitigation" schemes are allowed then you are asking residents here to bear the cost (reduced water use) and then ask them to bear the real cost of much higher cost water and/or much lower quality water for all future time. The only "mitigation" that is remotely tenable is the claim that the applicant is going to buy water from Los Angeles Department of Water and Power (LADWP). Note that delivery of LADWP water to the RSPP site must be included in the NEPA analysis if this mitigation scheme is chosen.
9. The IWVWD has signed an agreement with the applicant to deliver them 1,500 acre-feet of water for construction and 165 acre-feet of water for operation. Of note, the IWVWD agreement doesn't cut off operations water at 30-years – it is an open-ended agreement in that regard. If this project is approved, who/what will prevent the applicant from purchasing the balance of their water needs (particularly for construction) from other parties in this valley? Asked slightly differently, how will staff ensure that some finite water impact is born by the residents of this valley in the event of RSPP approval?
10. The claim that it is allowable to mitigate the construction water over the entire project life is little more than a scheme to enable the applicant. The 30-year RSPP life will consume 150 to 165 afy (acre feet per year) for a total of 4,500 af to 4,950 af. The construction need is forecast by the CEC at 6,000 to 8,000 af. The entire 30-year operational need is 1.2X to 1.6X LESS than that of construction. The construction water will be consumed in an 18 to 28 month period; it is GONE. The LADWP "mitigation" scheme is the only possible means of reducing the RSPP impact to this over drafted basin.
11. This project is cited as being a green energy producer. To many folks, the notion of "green energy" means low CO_2 or "carbon" production. The amount of diesel fuel that needs to be consumed to move 7.5 million cubic yards of earth for site preparation alone is staggering; between 3.75 million to 7.5 million gallons[13] which in turn produces 83.25 to 166.5 million

[12] http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/2009-12-28_Issues_Identification_Report_TN-54597%20.pdf

[13] http://www.state.nj.us/transportation/business/localaid/docs/fuelprice.doc

pounds of CO_2. Then include the additional diesel fuel required to bring that construction fuel to the RSPP site. Then roll in the CO_2 produced by the manufacture and shipment of the PTC parts from MAN Ferrostaal Inc. in Germany to Ridgecrest. Then roll in the two propane trucks per week for the life of the project to prevent the HTF from freezing. Then roll in the consumption of the applicant's estimated 1.02 million gallons of propane per year which itself produces 395 million pounds of CO_2 over the 30-year RSPP life. SA/DEIS PDF page 268 indicates the maximum amount of propane shall not exceed 1.91 million gallons per year. If this amount is actually burned over the project life, then the CO_2 production balloons to 725 million pounds. It would be very desirable to understand why there is a range of propane consumption numbers cited by the applicant. This understanding will help clarify my point #12.

12. On the topic of the working fluid, the so called Heat Transfer Fluid (HTF)… In my earlier letter I pointed out that there appeared to me a mistaken impression by the applicant on just exactly how warm it is here. From data obtained from the Western Regional Climate Center[14], eight months out of the year, the mean, monthly average, overnight low temperature is below 54 °F and four months out of the year, the mean, monthly average temperature is below 54 °F from 1940 – 2009. I further suggested that the applicant had under estimated the amount of propane required to keep the HTF fluid above freezing. There is no obvious reference in the SA/DEIS that this issue was addressed; see SA/DEIS PDF pages 62 and 233. Given that the applicant claims to need two 5,000 gallon truckloads of propane per week which in turn translates to 2,725 hours (roughly 1/3 year) for the 35 MBTU/hr burner, why does the applicant claim to only need to burn propane for 500 hours per year (PDF page 233)? Where are the thermal calculations to support this claim? If evidence cannot be provided to support scientific claims, it surely is very difficult to grant the applicant any latitude on subjects that by their very nature are not mathematically based (e.g. cultural impacts).
13. SA/DEIS PDF page 602 has a fascinating threshold that staff uses for their acceptable risk level: "Since staff often uses a risk of 100 fatalities in 10,000 trips as an acceptable level of risk…." A risk of 100:10,000 is equivalent to 1:100. This is a very high risk posture compared to a "typical" risk more like 1 fatality in 1 million[15]. Perhaps staff should revisit this topic…
14. Does the BLM have an existing agreement with the US Fish and Wildlife Service (USFWS) regarding compliance with Section 7 mandates[16]? The SA/DEIS mentions the need for section 7 consults on PDF pages 18 and 404. Section 7 issues are complex and the almost complete lack of detail is astonishing. Does the BLM have a pre-negotiated agreement with the USFWS that governs endangered species and proposed land disturbance in the area of the proposed RSPP? If yes, it would be desirable to advise the interested public of the salient details of this agreement. Even with a pre-existing agreement a section 7 consult is on the order of 12 months in duration. If there is no pre-negotiated agreement, when might the BLM initiate this activity? Does the BLM believe the existing biological surveys adequately document a project of this scope? Is this decision in writing? Are the survey methods, results, and analysis available for review?
15. One major element missing from the SA/DEIS is an integrated master schedule (IMS). Some events can occur in parallel and others must occur in serial. Other events must occur during certain times of the year (e.g. biological surveys, especially for the desert tortoise & Mohave Ground Squirrel). When will the water pipeline be completed? What point in time is that pipeline completed relative to the start of earthmoving? As part of a system level review of this project, both the CEC and BLM should be reviewing an IMS. This will enable "what if"

[14] http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4278
[15] http://en.wikipedia.org/wiki/Risk_assessment
[16] http://www.fws.gov/endangered/consultations/s7hndbk/s7hndbk.htm

scenarios to be examined with credibility. This is complex project and schedule elements can "look good" when examined in isolation, but when assembled with proper linkage can look considerably different. If an IMS exists, it should be posted to the CEC website. If it doesn't exist, I surely hope that the applicant can be encouraged to develop an IMS.

16. As was pointed in Tom Budlong's scoping letter, there is a gross miscommunication being levied throughout the SA/DEIS. The RSPP is a 250 MW name-plate rated power plant, but the average power is 57 MWh. In particular on SA/DEIS PDF page 1288 energy density is computed and the 250 MW nameplate rating should not be used, rather the actual average power generated should be used. Using the applicant claim of 1,440 acres[17] of "occupancy" yields 25 acres / MW. The zone of disturbance, however, is 3,995 acres yielding a perhaps more truthful 70 acres / MW.
17. The Alabama Hills "alternative" appears to be a placeholder in the SA/DEIS. Even the SA/DEIS points out the extreme challenge of that site on PDF page 136 namely the 5% grade, the "potentially significant" visual impacts, and the minor detail that the site is within the Alabama Hills National Recreation Area. I suggest that this site is not a viable alternative.
18. The Ridgecrest Landfill Alternative Site is discounted due "major grading" requirements. I would suggest that 7.5 million cubic yards is a major grading effort. Could the applicant make some estimates of the grading required at this alternative site?
19. SA/DEIS PDF page 80 provides a table summarizing various options that are "in" or "out" from additional consideration. It is bizarre that non-PTC technologies are eliminated from consideration precisely because they are not manufactured and operated by SM. Is the CEC going to allow this logic to persist?
20. Has proper consideration been given the viability of dry cooling? NV Power considered installing a dry cooling only, coal fueled power plant in Ely, NV. This project has been put on hold[18], however, the engineering development that did occur resulted in a surprising conclusion. Dry cooling alone would not work in Ely, NV. Ely is 3.6 degrees further north than Ridgecrest and 3,802 feet higher in elevation. The result of the latitude and elevation changes is the cooler weather and lower air density. Assuming the lower air density could be overcome with forced circulation in their dry cooling tower, we are then left with a location that doesn't get as hot as Ridgecrest being unable to support dry cooling. NV Power proposed adding a wet cooling circuit to their project so that it would employ both methods. The basic thermodynamics of this facility are not difficult to understand and compute, but the general public doesn't have all the data to enable us to conduct the calculation.
21. Taking weather data from a regional weather station from 1998 to 2008, hourly average wind speed during daylight hours (assumed 0600 to 1800 year round) exceeded 18 mph 5.9% of the time. Peak wind speed exceeded 18 mph almost 30% of the time. In the article by Wei[19], et al, "A study of the unfavorable effects of wind on the cooling efficiency of dry cooling towers", 18 mph is the speed where "cooling efficiency drop[s] about 10 to 25%."

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[17] http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/applicant/afc/2.0%20Project%20Description.pdf

[18] http://investors.nvenergy.com/phoenix.zhtml?c=117698&p=irol-newsArticle&ID=1254617&highlight=

[19] "A study of the unfavorable effects of wind on the cooling efficiency of dry cooling towers", Qing-ding Wei, Bo-yin Zhang, Ke-qi Liu, Xiang-dong Du, Zian-zhong Meng, Journal of Wind Engineering and Industrial Aerodynamics 54/55 (1995), p633-643.

I understand this project is no longer on the “fast track” process. This is a good thing to the extent this permits the project to undergo a complete NEPA/CEQA review. I further understand that the “no project” opinion of both the CEC staff biologist and the California Department of Fish and Game withstood scrutiny during 03/04 May 2010 meetings. At what point does the opinion of these two agencies become binding and the project is terminated? How many “no project” opinions are required?

As staff moves forward, I strongly encourage a system engineering type review of this project. There are many details – a few pointed out here – that simply don’t add up to a complete understanding by the applicant. Thank you again for the opportunity to comment on the RSPP.

Sincerely,

Mark Decker

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