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22 April 2010

California Energy Commission
Attn: Eric Solorio, Project Manager
1516 Ninth Street, MS-15
Sacramento CA 95824-5512

Reference: Ridgcrest Solar Power Project (RSPP) (09-AFC-9) Staff Assessment (SA)

Dear Sirs:

I wish to address perceived weaknesses/deficiencies of the SA regarding water use. The areas of concern include, but not limited to, water use estimation, mitigation method effectiveness, and how impact of groundwater extraction is treated, particularly cumulative impact.

In SA section C.9.4.1 (pg. C.9-4) water use is divided into construction and operation phases of the project. Yet in section C.9.13 (pg. C.9-72) a proposed condition of certification/ mitigation measure [soil&water-5] refers to a third phase of the project: decommissioning. Elsewhere in the SA it is noted that the decommissioning may not occur until the 40 years after start of operation (pg. C.90-60). During the third, final phase another water use may be entailed, that which is associated with avoidance of long-term impacts related to water and wind erosion after decommissioning (i.e. re-vegetation and restoration of disturbed areas). As this third phase is an integral part of the overall project, its projected use ought to be accounted for in the mitigation plan (see related water conservation offset program below). If the planning scenarios result in a range of numbers, prudence dictates use of the greatest value noted.

In SA section C.9.13 (pp. C.9-70/71) a proposed condition of certification/mitigation measure [soil&water-3] states that the applicant will prepare and implement a *water conservation offset program (WCOP)*, that the plan will provide a *contingency to assure an offset of 100% of water use during the life of the project, demonstration in the water conservation accounting that RSPP shall not be credited with other independent water conservation activities in the Indian Wells Valley groundwater basin (IWVGB) for which the WCOP has no effect, and a methodology for monitoring and independent confirmation of the results for the life of the project.* Note these provisions when considering the proposed mitigation developed by the Indian Wells Valley Water District (IWVWD), discussed below.

The applicant's application for certification (AFC) for the RSPP will be issued with the above proposed condition attached (unless modified). These amounts should constitute a minimum objective for the District's water use mitigation measures. A further proposed condition in the SA (pg. C.9-71) [soil&water-4] states that project *groundwater use shall not exceed 1,470 acre-feet for construction, nor exceed 150 acre-feet annually for operation.* Any additional use will have to be accredited by modification of the project certification document. The agreement worked out between the IWVWD and the applicant provides for a 10% margin in use above that stated in the SA. There is ample evidence/opinion that project construction use will exceed the initial project estimate. Many observers have expressed the opinion that the initial project amount of 1470 acre-feet was a lowball estimate. Similar projects have estimated higher usage for markedly lower amounts of construction excavation. The IWVWD position appears to be that it is physically incapable of providing more than 1,650 acre-feet over the planned 28 month construction period. The project operational phase is a nominal 30-year period, yet for several reasons it would be unwise recoup the construction water use in 30 annual increments of 1/30th of the construction use.

The IWVWD cash-for-grass plan involves making contracts with property owners enrolled in the program over a period of only 10 years. The general manager stated that the district will "ask for reimbursement" if the landscaping changes are undone within the 10 year period, but that if the property is sold before then, the contract terminates (without reimbursement or penalty). He also says that it may take up to six years to enroll and complete all the landscaping changes needed to meet the annual saving rate goal of the cash-for-grass program. The district's plan is to operate a monitoring program of cash-for-grass entrollees of only ten years' of program duration. That implies that the last enrolled (at the 6-year point) should be monitored for only the final four years.

The RSPP applicant states that the nominal project operational life is 30 years, or perhaps that period merely denotes the duration of the power purchase agreement (PPA) that the applicant plans to activate with Southern California Edison. Yet the applicant makes no firm commitment that the project will operate for the full period under any and all circumstances (this qualification to the commitment was noted in researching the project, but the reference citation escapes me). The construction period is variously estimated to last up to 36 months, and to qualify for all ARRA benefits, I understand that it cannot exceed 60 months. As the bulk of the construction water is

consumed within the first year or two from start, the delay for completion of a 30-year payback time could be 33 or 34 years.

In the world of economic theory, the present value of future benefits is not one-for-one, but is properly discounted at a compounded annual rate. Even the most financially stable borrower, with attractive loan collateral, pays at a loan interest rate marginally higher than the prime interest rate. The lesson here is that the construction water consumption quantity (or water loan) ought to be paid back either more promptly, or else paid back with (compounded) interest. I suggest ten year payback time (10 annual increments of 1/10th of the construction consumption), conforming to the District's monitoring plan duration. If not, then I suggest the payback quantity include and excess, compounded (interest payments) at 7 percent per annum.

Similarly, if the fallowing of agricultural land alternative is considered, concerns about the soundness of such a mitigation program may be encountered. There is a long history of fallowing of hay fields hereabout, usually associated with water quality declines, pumping cost rises, and/or shortfalls in the crop irrigation application rate (due to need to flush brine accumulation below the root zone). If fallowing of agricultural fields is already inevitable, paying the operator to do something he will do eventually simply subsidizes a relocation that was going to happen anyway. Cash for grass by comparison is a much sounder proposition because, unlike the grower, the homeowner has the preponderance of his investment in the house, not the greenery.

If the construction project's water needs grow, and the water district hangs tough on its limitation of 1,650 acre-feet of construction water, yet the project may obtain groundwater from other local vendors (perhaps using water haulers). The district has no plan for limiting cash for grass to properties that draw water supplies from the well group that will be supplying the construction water (district wells 18, 33, and 34). Its position appears to be that water use reduction anywhere in the district counts as mitigation. The mitigation plan reducing consumption among district customers could be expanded to account for any substitute supplier, regardless of where the water supply originated. The district's agreement should be amended to account for possible external supplies, given that it is apparent that the project's needs exceed the district's ability to supply construction water. Mitigation efforts should correspondingly grow to account for total project water use, not just deliveries made by the IWWWD.

In section C.9.1 of the SA (pp. C.9-31-33) the analysis of water use impact during construction and operation is described using a model to estimate the extent of the incremental increase to the pumping cone of depression if drawn from well 18. Yet in section C.9.10 (pg. C.9-56) it states that *incremental effects of a project are significant when viewed in connection with the effects of past projects*. There can be no clearer example of cumulative effects than the general rate of groundwater in this valley. The measured rate varies from place to place (presumably according to distance from locations where high extraction rates have been imposed), but generally in the range of one to five feet per year. The SA seems to have ignored this expression of the cumulative impact. In the southwest well field, I understand that the rate of decline is already on the order of three feet per year. Over a 35-year period, the cumulative decline at this rate exceeds 100 feet. Few domestic wells are able to sustain such a decline in groundwater level while retaining any usefulness. In discussion of possible adverse effects of pumping (pg. C.9-31) the SA states that *drawdown can result in the water level of an aquifer being drawn down below the screen of the well (i.e. the well goes dry)*. The context of that section was description of interference between only two wells, but in the broader context of cumulative impact, it adequately describes the result of general groundwater decline.

Surely the individual impact of the proposed project makes but a minor contribution to the horrific outcome described above. The misery of overdraft already visited upon this valley on itself is largely responsible. Yet is it not the intent of assessing cumulative impact to expose such outcomes. Can the CEC evade all responsibility for adding even one feather's weight to the burden of misery already present?

Thank you for the opportunity to register my concerns.

Sincerely,

E R Middlemiss