STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

In the Matter of:	)	Docket No. 09-AFC-8
Application for Certification For the Genesis Solar Energy Project	)	August 4, 2010

Staff's Reply Brief

In Response to CURE's Opening Brief #2
Addressing Soil and Water Issues Raised at the
July 13, 2010 Evidentiary Hearing

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INTRODUCTION

On July 27, 2010, Intervenor California Unions for Reliable Energy ("CURE") filed a Second Opening Brief concerning Soil and Water Resources for the Genesis Solar Energy Project ("Genesis Project"). This is Staff's Reply.

DISCUSSION

A. Genesis Project Does Not Currently Require an Entitlement to Colorado River Water and by Using Dry-Cooling Technology, the Project Also Does Not Foreseeably Require Any Such Entitlement

1. Committee's Order Finds that the Accountability Surface is not a Law, Ordinance, Rule, or Standard (LORS)

The Committee agreed with the Applicant that the U.S. Bureau of Reclamation's accounting surface methodology is a tool that aids analysis, not a LORS. (Genesis Project Committee, Decision and Scoping Order, February 2, 2010.) Whether the accounting surface methodology applies is a question of fact. (*Ibid.*)

2. Use of Dry-Cooling Technology Removes Staff's Original Concerns Regarding Reliability and *Potential* Use of Colorado River Water

It is clear that using Colorado River water without an entitlement is illegal. (*Arizona v. California* (2006) 547 U.S. 150, 153.) The 2006 Consolidated Decree is just the latest tip of a very deep iceberg, which the Committee is surely familiar with by now from Staff's Opening Brief (July 26, 2010) and CURE's Second Opening Brief (July 27, 2010), as well as the briefs addressing the Scoping Order (e.g. Staff's Response, January 19, 2010.)

What isn't clear, and has never been clear, is how much or if at all the Genesis Project would draw Colorado River water. The latest letter from the California Colorado River Board required a contract "if" it is determined that these wells are "in fact" pumping Colorado River water. (Exh. 546.) The U.S. Bureau of Reclamation never made a determination. Neither the River Board, nor the BOR, nor the commercially-interested Metropolitan Water District suggested a particular amount of acre-feet. Most conservatively, Staff's original concerns—positing that the wells might conceivably dip below the accounting surface toward the end of the project's 30-year life—were based on the use of wet-cooling. (Staff's Response to Scoping Order, *supra*, p. 7.)

Applicant's consent change to dry cooling dramatically lowers impacts—from approximately 1600 acre feet a year during operations to 202 acre feet a year, about 85% less. If pumping below the accounting surface was far off in the future (say, 25 years) with wet cooling, it is beyond the life of the project with dry cooling and enters the realm of the speculative. More pertinently, if the most knowledgeable agencies responsible for the River would not previously

state unequivocally there would be pumping of the River, they are much less likely to state that now.

As Staff's Opening Brief explains, negotiations before the second day of Evidentiary Hearings resulted in another, but still conservative, way to prevent any possible impacts to the Colorado River. Staff agreed with the applicant that the effect on the Palo Verde Mesa Groundwater Basin, the one closest to the project, is necessarily greater than any project effect on the Colorado River and that, if the applicant offsets the project impacts on water in the Palo Verde Mesa Groundwater Basin, there will be no effect on the Colorado River.

Conditions of Certification SOIL&WATER-15 and SOIL&WATER-19 require those offsets. (Exh. 443.)

B. Staff More than Sufficiently Addressed Water Supply and Water Demand in Its Extensive Analysis of Water Resources

1. Although Water Code Section 10910 Does Not Apply to this Commission Proceeding, Staff Prepared a Thorough Water Supply Assessment

Although CURE cites Section 10910 of the California Water code, that section is expressly directed at cities and counties. (Water Code, § 10910, subd. (a).) No component of Part 1 of Division 6 of the Water Code imposes *any* requirements on state lead agencies. However, assuming for the sake of argument it does apply to state lead agencies, the Revised Staff Assessment contains all information required by these statutory provisions. (Exh. 400, "RSA," Soil and Water Resources.) A local agency water supply assessment must contain a description of basins (Water Code, § 10910, subd. (f)(2), including information about threat of overdraft, analysis of historic and proposed pumping, (subd. (f)(3),(4)), and an analysis about the ability of the basin to meet the demand of the proposed project. (Subd. (f)(5).) A thorough description of all these elements is included in Staff's analysis.

The Staff analysis identifies that the project plans to drill a minimum of two wells for each power block (with additional standby wells) onsite (RSA, C.9-5), and has drilled test wells to aid analysis of water availability and water quality. The amount of water use for construction and operation is identified. (C.9-5-7.) The Chuckwalla Valley Groundwater Basin and neighboring basins are analyzed. (C.9-18-26.) Direct and indirect impacts are intensely analyzed through the use of a comprehensive groundwater model. (E.g., Exh. 416.) Cumulative impacts are also evaluated, including long-term impacts on basin balance and budget. (C.9-70-77.) Water demand is described, and was thoroughly debated regarding the use of wet-cooling versus dry-cooling technology. (C.9-7.) Lastly, Conditions SOIL&WATER-4, -15 and -19 fully mitigate the applicant's water demands and impacts, including any latent impacts after the project's closure. (Exh. 443.) In sum, a comprehensive water supply analysis was prepared for this project.

2. CURE's Cited Case Is Inapposite

Staff routinely and thoroughly analyzes water impacts under CEQA and analyzes relevant LORS for all aspects of a proposed project. Water supply, use, and demand are among most vigorously contested areas in Energy Commission AFC proceedings. To ensure project conformity with law, and with heightened awareness of and support for California water policy and water conservation in desert regions, Staff takes analysis of proposed water use very seriously, and this approach is reflected in the Genesis project

Moreover, the case cited by CURE is not relevant to the Commission's review of the Genesis Project and must be disregarded as inapposite. In that case, the Fourth District Court of Appeals found that the *county* failed to follow the statute because it performed *no* analysis of the water supply. (*Center for Biological Diversity v. County of San Bernardino* (May 25, 2010, D056652, D056648) 185 Cal.App.4th 866, ___ (4th Dist. 2010) [2010 WL 2539847, p. 15].) The court explained:

> It is undisputed that the [Final Environmental Impact Report] does not include a [water supply analysis] under section 10910. The FEIR's information about the availability of water for the proposed Hawes Project is pure speculation. It merely states that perhaps Nursery Products would use well water, perhaps it would have water trucked onto the site, and perhaps it would use a combination of those sources. There is no indication as to whether a well had been drilled to determine *actual* availability, or as to the *actual* availability or source of any imported water.

(*Ibid*.) That analysis also omitted *mention* of water use for fire suppression and sanitation. (*Id*. at p. 5.) In other words, there was no analysis of water use at all. Even a cursory review of the Revised Staff Assessment for the Genesis project demonstrates that there is comprehensive information about water supply and demand. There is nothing in the cited case that supports a conclusion that that each and every gallon in an environmental analysis be broken out by type, which is perhaps why CURE's brief contains no citation for that assertion (CURE's Second Opening Brief, p. 7.) The court understandably wanted a figure for total water use that includes major components. This – and much more information – is available in the Revised Staff Assessment.

C. With Mitigation, the Project Will Have Less than Significant Effects on DownstreamVegetation

Staff assuredly did independently investigate, consider, analyze, and draw conclusions regarding hydrological impacts and the best way to avoid impacts to downstream vegetation. Dr. Andrew Collison personally visited the site and wrote an extensive report describing the area's sand dunes, sand transport processes, and impacts. (RSA, Soil and Water Resources, Appendix E.) He distinguished the two land surface units, and concluded they are both "relatively geomorphically stable and that are not part of an active wind transport corridor," with "no large washes… that carry large amounts of sediment across the project site. (*Ibid*., p. 1.) Biological Resources Staff further examined potential, long-term impacts to downstream vegetation. (RSA, C.-2 72, 73; Biological Resources, Table 5 (Waters of the State & Associated Sensitive Plant

Communities), and Table 6 (State Waters, Direct Impacts to Microphyllous Riparian Vegetation).) Staff concludes that with mitigation, most impacts to downstream vegetation would be avoided and minimized, with minor residual impacts to vegetation addressed via land acquisition.

1. Hydrological Effects

CURE's main argument that the proposed drainage plan will not work is based on a faulty comparison. In his testimony for CURE, Dr. Greg Okin cited Schlesinger and Jones (1984), who assessed the effects of constructing water diversions along the Colorado River Aqueduct on downstream alluvial fan vegetation communities. (Exh. 409, p.1.) Dr. Okin argued based on that study that the Genesis drainage plan would cause degradation of the alluvial fan vegetation community's downslope (south) of the Genesis site. (*Id*. at p. 2.)

The Schlesinger and Jones study is irrelevant to review of the Genesis project. Staff's Dr. Andrew Collison conducted a field examination of the geomorphic and vegetation impacts of the Colorado River Aqueduct drainage system as part of the Energy Commission's Rice Solar Power Project assessment, also visited a site west and south of the Genesis site where drainage from an 1-10 bridge crossing. (RSA, Soil and Water, Appendix E, p. 1.) The proposed drainage plan for the Genesis site (RSA, Soil and Water Figure 19, reproduced below) dissipates and disperses water, and does not channel it in a concentrated stream as does the Colorado Aqueduct and the drainage crossings built for Interstate-10 (RSA, Appendix E Soil & Water Report, Figures 20 and 21, reproduced below).

The Genesis drainage plan will use hydraulic controls to spread small volumes of water from numerous small discharge points with little dry area between them. (Exh. 33, p.1; RSA, Soil and Water Figure 19 (reproduced below).) Water will be released from approximately twenty-five 12-inch pipes and a series of low weirs, each located approximately every 150-250 feet along the project boundary, rather than from a single uncontrolled channel. (Exh. 33, Appendix A.) The flows will thus have a much lower velocity, lower discharge rate, be shallower and be more dispersed than the flows near the Colorado River Aqueduct or I-10. This will mimic the natural pre-project drainage pattern and avoid the drainage-plan impacts feared by Dr. Okin.

Conditions of Certification SOIL&WATER-8, -9 and -10 address the channel design, with SOIL&WATER-10 containing the specific requirements to match natural drainage patterns. (RSA, C.9-110-112.)

Biologically, Dr. Okin's comparison to the collector ditches south of I-10, where there is widespread plant mortality, reduced cover, and reduced plant diversity (RSA, C.2-72) is an inappropriate comparison for the same reasons. In the I-10 example, flows of dozens of small washes are diverted into only three primary channels, and with no diffusers. (C.2-172.) There is widespread mortality along the smaller washes because the flows were not returned.

In contrast, the Genesis project would return the flows to the smaller delineated features. There could potentially be a minor loss of vegetation between these channels in areas supported by

sheet flow that are located in areas missed by the diffusers. The sheet flow (which was not delineated as waters) does not support microphyll woodland ("desert dry wash woodland") and instead supports only very sparse cover of creosote bush. This relatively minor loss would be addressed by the 0.5 compensatory mitigation requirement. (RSA, C.2-72-73, Biological Resources Table 6, see also BIO-22.)

CURE's comparison of mitigation ratios for sparse cover downstream to mitigation for the site itself is similarly inapposite. The site obviously displaces all vegetation. Downstream, because of the well-considered and tailored drainage plan, most impacts will be avoided and minimized. The lesser mitigation also takes into account the specific biology, namely. the stubborn ability of desert plants to survive regardless of a water conditions. In spite of the decades-old, unnatural drainage design of I-10, some plants survive. (RSA, C.2-72-73.) As Hearing Officer Celli noted, and CURE's biologist agreed, they ironwood trees are "called… ironwood trees for a reason." (Transcript, July 13, pp. 206-207.)

2. Erosion and Soil Mobilization

CEQA Guidelines ask if the project will result in *substantial* erosion or the loss of topsoil (Appendix G, Geology and Soils), *substantially* alter the existing drainage pattern of the site, or *substantially* increase surface runoff in a manner that would result in flooding (Appendix G, Hydrology and Water Quality). Staff acknowledges the impacts could be significant (RSA, C.9-1) but CURE assumes they would be significant based on the single fact of the size of the project. (Second Opening Brief, p. 12). CURE then summarily concludes mitigation would fail. Staff has crafted a variety of mitigation measures, many of them standard, to create stabilized surfaces that would be as or more impervious to wind erosion than the native soils, which naturally erode.

Condition of Certification SOIL&WATER-1, part H (RSA, C.9-99), requires the Applicant to develop and put into place a Drainage Erosion and Sedimentation Control Plan, including measures to prevent erosion from wind and water. The Plan requires the use of proven and accepted best management practices (BMPs) to mitigate erosion issues. Soil treatments including chemical based dust palliatives and bonding agents have been used successfully for decades to mitigate soil and dust blown erosion. A monitoring plan is also required to monitor the effectiveness of a treatment and allow for reapplication of soil treatments or additional solutions if necessary. Channels are maintained via SOIL&WATER-13. (C.9-114-117.)

Staff rejects Dr. Okin's contention that wind will create a plume of sand, which will extend from the southern edge of the project and potentially bury plants. (Exh. 509, page 4). Because of their size and weight, sand particles are rarely suspended for great distances. (Exh. 402, p. 25.) Sand moves by creep (where sand grains roll along the ground surface) and saltation (where grains are carried into the air for a short distance and 'hop' downwind before they land and either bounce or dislodge other particles). (*Ibid*.) The height of the sand transport zone varies with particle size and wind speed, but most transport occurs within six feet of the ground. (Exh. 402, p. 25.) Bagnold (1941) recorded that for sand particles with a diameter of 0.25 mm, the mean elevation of the saltation zone was one centimeter above the ground surface.

Regarding dust controls, Staff supplied Conditions of Certification beyond what was mentioned in Mr. Okin's written testimony. He solely discusses Condition of Certification AQ-SC3 (n). (Ex. 509, p. 5-6.) Staff adds that AQ-SC3 (a) and (b) (construction road dust prevention), AQ-SC7 (operations dust control plan) also prevent or suppress dust on the site. Staff believes that in combination, these measures mitigate the project site's wind erosion potential to no more than current, baseline levels.

CONCLUSION

Staff again applauds Applicant for changing the design of the Genesis Project to the use of dry-cooling technology, saving approximately 1400 acre feet per year of groundwater during operations, or some 42,000 acre feet of water over the life of the project. As Staff originally envisioned, the saved water could potentially supply other solar plants, helping California meet its renewable energy goals.

As the Genesis Project does not impact Colorado River waters, it does not require an entitlement to Colorado River water. The avoidance, minimization, and mitigation measures set forth in Staff's assessments will prevent both significant erosion and impacts to downstream vegetation. Staff's analysis of the project's water supply and demand satisfies all requirements under the law.

Lastly, staff again recommends that the Committee adopt the Soil and Water Conditions of Certification and approve the feasible alternative of the project's use of dry-cooling technology.

Date: August 4, 2010

Respectfully submitted,

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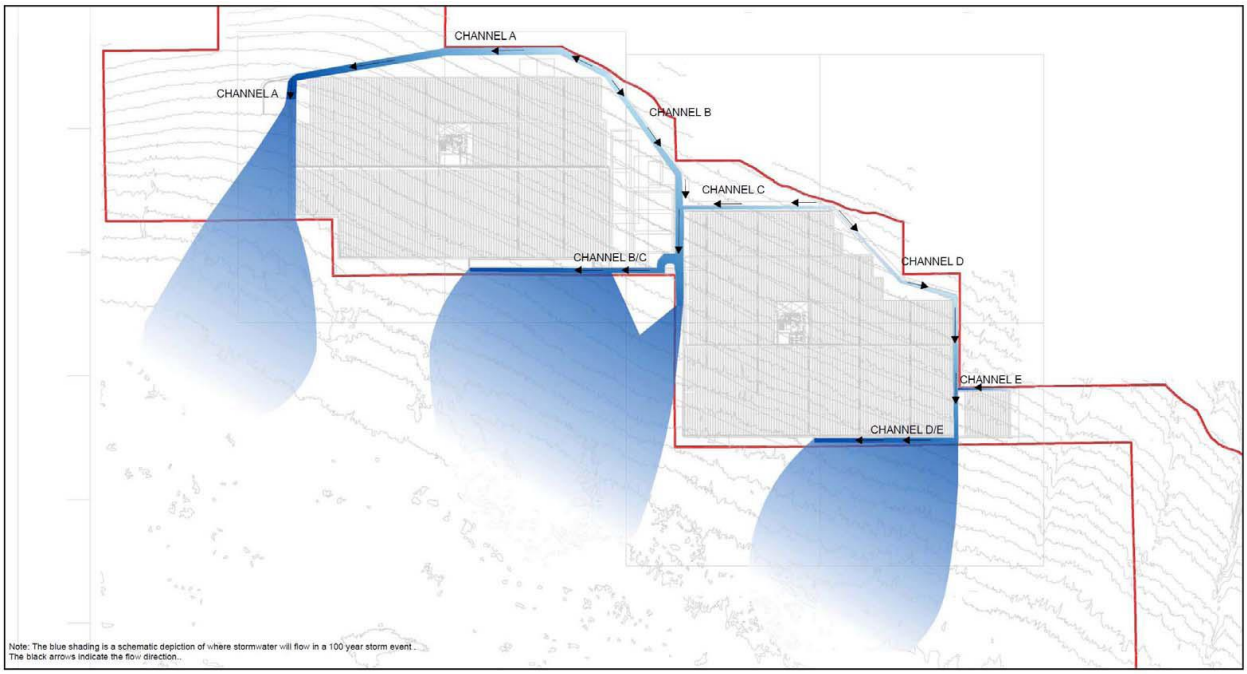
FIGURES



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1. Drainage Plan for Genesis Solar Energy Project, showing dispersal points and pattern of shallow, dispersed overland flow. (RSA, Soil and Water Figure 19.)

2. Staff photograph showing a channel passing under I-10. It is analogous to the collected channels that pass under the Colorado River Aqueduct, similar to the ones that Dr. Okin cites, but very different from what Genesis would produce. (RSA, Appendix E Soil & Water Report, Figure 20.)

3. Staff photograph showing the effects of uncontrolled releases, again different from what Genesis would release. (RSA, Appendix E Soil & Water Report, Figure 21.)