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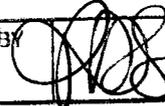


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1 Timothy M. Hogan (004567)  
2 ARIZONA CENTER FOR LAW  
3 IN THE PUBLIC INTEREST  
4 202 E. McDowell Rd., Suite 153  
5 Phoenix, Arizona 85004  
6 (602) 258-8850

Arizona Corporation Commission  
**DOCKETED**

JUL 29 2010

DOCKETED BY 

7 Attorneys for Denise Bensusan

**BEFORE THE ARIZONA CORPORATION COMMISSION**

8 KRISTIN K. MAYES, Chairman  
9 GARY PIERCE  
10 PAUL NEWMAN  
11 SANDRA D. KENNEDY  
12 BOB STUMP

13 IN THE MATTER OF THE APPLICATION  
14 OF HUALAPAI VALLEY SOLAR LLC, IN  
15 CONFORMANCE WITH THE  
16 REQUIREMENTS OF ARIZONA REVISED  
17 STATUTES §§ 40-360.03 AND 40-360.06,  
18 FOR A CERTIFICATE OF  
19 ENVIRONMENTAL COMPATIBILITY  
20 AUTHORIZING CONSTRUCTION OF THE  
21 HVS PROJECT, A 340 MW PARABOLIC  
22 TROUGH CONCENTRATING SOLAR  
23 THERMAL GENERATING FACILITY AND  
24 AN ASSOCIATED GEN-TIE LINE  
25 INTERCONNECTING THE GENERATING  
FACILITY TO THE EXISTING MEAD-  
PHOENIX 500kV TRANSMISSION LINE,  
THE MEAD-LIBERTY 345kV  
TRANSMISSION LINE OR THE  
MOENKOPI-EL DORADO 500kV  
TRANSMISSION LINE.

Docket No. L-00000NN-09-0541-  
00151

Case No. 151

**INTERVENOR BENSUSAN'S  
RESPONSE TO APPLICATION TO  
LIFT STAY**

ARIZONA CORPORATION COMMISSION  
DOCKET CONTROL

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1 **I. INTRODUCTION**

2 The Applicant in this case, Hualapai Valley Solar LLC (“HVS”), has filed an  
3 application to lift the stay imposed by the Commission when it reopened this proceeding  
4 pursuant to A.R.S. § 40-252. Hearings were conducted on June 15-16 in Kingman,  
5 Arizona, where Intervenors were given a full opportunity to participate and present  
6 evidence. Based on the evidence presented at the June hearing, it is clear that the  
7 Commission should prohibit the use of groundwater for HVS and instead require that the  
8 project use dry cooling and/or effluent as a condition for approval of this project.

9 The Hualapai Valley aquifer is indisputably in depletion. The Commission should  
10 minimize further depletion by requiring dry cooling for the HVS project. Under  
11 conservative estimates, failure to do so would result in upwards of 8,000 acre-feet of  
12 water per year of further depletion. This is why all of the most recent projects in the  
13 desert regions of California and Nevada will be either dry cooled or use effluent. This  
14 new standard is supported by regulators in California and with the Environmental  
15 Protection Agency, and even under Section 3.5 of the Mohave County General Plan. It is  
16 true that it will cost more but how much more is unknown in this case because no site-  
17 specific study has been performed by HVS.

18 Intervenor Bensusan submits that the Commission should require dry cooling for  
19 the entire HVS project. However, she understands that HVS is planning to purchase  
20 effluent from the City of Kingman and would support a hybrid system where wet cooling  
21 is sourced by effluent. This would incentivize the maximization of effluent as well as  
22 prevent further the depletion of the aquifer.

23 **II. THE HVS PROJECT WILL FURTHER DEplete THE HUALAPAI**  
24 **VALLEY AQUIFER**

25 In the §40-252 hearing, Intervenor Bensusan established that the Hualapai Valley  
aquifer is in a state of depletion. Even using a conservative estimate, 10,000 acre-feet of

1 water are being withdrawn annually, while recharge is only between 2,000 and 2,400  
2 acre-feet of water. This results, at a minimum, in a net depletion of 8,000 acre-feet per  
3 year. Hearing Transcript (“HT”), Vol. II at 324. Under Section 3.5 of the Mohave  
4 County General Plan, when the aquifer is in depletion then dry cooling should be selected  
5 over wet cooling in the approval of new power plants. However, the determination of  
6 “depletion” is determined by the Mohave County Board of Supervisors, a political entity  
7 with an interest in the approval of the HVS project. HT, Vol. II at 306.<sup>1</sup>

8 HVS asserts that the depletion would be minute in comparison to the overall  
9 volume of the aquifer and would be reduced by the use of effluent. That rationale makes  
10 no sense. The notion that a valuable resource like water should be used simply because  
11 the current supply might be adequate is dubious when there is an alternative available that  
12 will conserve the resource.

13 If HVS does agree to use City of Kingman effluent for cooling purposes, this  
14 would offset some aquifer depletion. However, HVS continues to oppose any absolute  
15 requirement that it use effluent. It is expected that negotiations between HVS and the  
16 City will be completed by the end of July. Even then, HVS opposes any requirement in  
17 their Certificate of Environmental Compatibility (“CEC”) to use the City’s effluent  
18 because it claims there are still too many uncertainties associated with the purchase,  
19 delivery and transportation of the effluent. In any event, the Commission currently has  
20 no way of knowing how much effluent will be utilized. HT, Vol. I at 69.

21 In the CEC issued by the Line Siting Committee, and conditionally approved by  
22 the Commission, Condition No. 4 provides that:

23  
24  
25 <sup>1</sup> Section 3.5 of the Mohave County General Plan was undergoing revision at the time of  
the hearings in June. The revised provision would rely on the Arizona Department of  
Water Resources to determine whether an aquifer is in depletion.

1 The Applicant shall make all reasonable efforts to minimize  
2 the use of groundwater during construction and operation of  
3 the project, and use effluent for cooling and all other non-  
4 potable water uses to the extent it is made available by the  
5 City of Kingman from its Hilltop Waste Water Treatment  
6 Plant ("WWTP") and can be transported by the Applicant and  
7 at the Applicant's expense to the project site. Decision No.  
8 71648 at 5.

9 There is no guarantee that this condition will actually minimize the use of groundwater  
10 given HVS's unwillingness to commit to using City effluent at all. The City is anxious to  
11 sell the effluent to HVS and estimates that the output in October 2011 will be at least  
12 1,635 acre feet per year and as much as 1,962 acre feet per year. HT. Vol. II at 259.  
13 HVS testified that the plant needs approximately 2,200 acre feet per year as an annual  
14 average. HT, Vol. I at 191.

15 The Commission needs to insure that HVS actually uses every ounce of effluent  
16 that is produced by the City of Kingman. Without a firm requirement, HVS could use  
17 groundwater for all of its cooling needs. The current certificate provision requiring HVS  
18 to use "reasonable efforts" to minimize the use of groundwater effectively places the  
19 burden on the Commission for enforcement of that provision. Instead, the Commission  
20 should place the burden firmly on HVS and require it to use all the effluent produced by  
21 the City of Kingman.

### 22 **III. THE COMMISSION SHOULD REQUIRE THE USE OF DRY COOLING**

23 To the extent that effluent is not available, HVS' cooling needs should be met with  
24 dry cooling. Dry cooling uses virtually no water and now represents the new standard for  
25 desert solar plants like HVS. Intervenor Bensusan documented numerous CSP plants in  
the tri-state desert region that will be using dry cooling. They include:

- BrightSource is currently developing its first solar power complex in California's Mohave Desert. The Ivanpah Solar Power Complex will be located in Ivanpah,

1 approximately 50 miles northwest of Needles, California. The Ivanpah Project is  
2 an approximately 400 megawatt solar complex using mirrors to focus on solar  
3 receivers atop power towers. The proposed plant employs a closed loop dry  
4 cooling technology which reduces water use by 90% and will only use 100 acre  
5 feet of water per year. DB-1, Exhibit 10.

- 6 • Solar Millennium LLC is proposing two solar thermal power plants outside Las  
7 Vegas, Nevada. The company is working under a memorandum of understanding  
8 signed with NV Energy for development and construction of one or two 242  
9 megawatt concentrating solar power plants. The company has decided to use  
10 advanced dry cooling technology for the two plants based on “extensive due  
11 diligence that took into account environmental and ecological considerations,  
12 including wetlands and wildlife habitats, water conservation and land usage, and  
13 state and federal government renewable energy initiatives and policies...” DB-1,  
14 Exhibit 16.
- 15 • Beacon Solar in California is being required to use recycled water obtained from  
16 the city of California City or the town of Rosamond for cooling purposes. DB-1,  
17 Exhibit 6.

18 Even Genesis Solar, a proposed solar plant in California between Blythe and Desert  
19 Center that HVS representatives testified would be wet cooled at the Line Siting Hearing  
20 in January, will now be dry cooled. The Applicant consented to the change after  
21 California Energy Commission Staff recommended dry cooling for the plant. See Staff’s  
22 Opening Brief at 8 attached as Exhibit 1.

23 Additionally, the staff of the California Energy Commission has issued an Interim  
24 Guidance for Desert Renewable Energy Project Development. The Draft Staff Report  
25



1 2010) (“The Arizona Corporation Commission and the State Legislature should consider:  
2 Following California’s lead and requiring all new CSP projects under its regulatory  
3 control to be dry-cooled unless they have degraded water readily available, such as city  
4 wastewater.”).

5 Dry cooling has emerged not only as a viable alternative but also as the industry  
6 standard among desert solar energy developers.

#### 7 **IV. THE COST OF DRY COOLING IS NOT PROHIBITIVE**

8 HVS cites the theoretical cost of dry cooling as a compelling reason to use wet  
9 cooling. It is “theoretical” because HVS has never prepared a site-specific analysis.

10 HVS has estimated the cost of its project at between \$2 billion and \$2.5 billion.  
11 HT, Vol. I at 118; Vol. I at 74. The \$500 million range provides HVS with plenty of  
12 room for any additional cost incurred by dry cooling, as HVS witness Mike LaRow  
13 admitted. HT, Vol. I at 118.

14 Based on the Department of Energy (“DOE”) Report to Congress, HVS claims  
15 that the capital costs for dry cooling are three times the capital costs for wet cooling. In  
16 the case of HVS, the wet cooling cost of the project is estimated to be \$40 million. HT,  
17 Vol. II at 224. Using the DOE Report for the estimated capital costs of dry cooling  
18 means that dry cooling could add \$80 million to the cost of the project. That’s only 3 or  
19 4% of the total project cost and well within HVS’ cost range of \$500 million for the  
20 entire project.

21 But it’s not even clear that the cost would be borne by HVS. HVS plans to utilize  
22 a significant amount of federal assistance in order to finance its project. A federal loan  
23 guarantee program exists that provides up to 75% of the financing. HT, Vol. I at 74.  
24 Furthermore, the 25% equity necessary for financing the project is also subsidized  
25 through federal assistance equivalent to the investment tax credit. HT, Vol. I at 89. This

1 significant amount of federal assistance should allow HVS the financial flexibility it  
2 needs to absorb any additional cost that might be incurred as a result of dry cooling.

3 In any event, HVS is hard pressed to claim that the inclusion of dry cooling would  
4 be too costly because it has failed to do a site-specific study of the costs, despite expert  
5 opinion that such a study would be necessary to assess the true cost. HVS' opposition to  
6 dry cooling is predicated on the figures provided by the Department of Energy in its  
7 report to Congress and nothing more. Based on the DOE Report, HVS claims an  
8 additional cost of between 7% and 9% associated with dry cooling. However, the  
9 Department of Energy report acknowledges the site-specific nature of the cost of dry  
10 cooling:

11 "A study of a dry-cooled parabolic trough plant located in the  
12 Mojave Desert concluded that dry cooling would provide 5%  
13 less electric energy on an annual basis and increase the cost of  
14 the produced electricity by 7% to 9%. However, the results  
15 are location-specific. For example, air cooling at a site in  
16 New Mexico would increase the cost of electricity by only  
17 2% because maximum daytime temperatures are considerably  
18 lower than in the Mojave Desert."

19 United States Department of Energy, Concentrating Solar Power Commercial  
20 Application Study: Reducing Water Consumption of Concentrating Solar Power  
21 Electricity Generation 2.

22 Even the company admits that the cost of dry cooling must be assessed on a site-  
23 specific basis. HT, Vol. I at 112 ("And all of these reports have been very clear that the  
24 use of dry cooling or wet cooling is a very site specific thing.")

25 According to Staff witness, Laura Furrey, a site-specific study based on economic  
and meteorological factors is necessary to determine the costs associated with dry cooling  
at the HVS plant. She stated as follows:

Q. In your opinion, would it be necessary to do a site specific  
study to determine the dry cooling costs that Hualapai Valley  
Solar would incur at the proposed plant?

1 A: Based on the literature review, it would seem that costs  
2 need to be evaluated on a site specific basis given the  
3 economic factors and meteorological factors that exist at a  
specific site.

4 HT, Vol. II at 399.

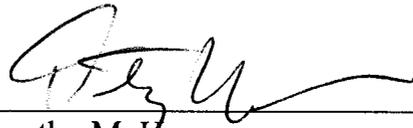
5 HVS claims that it cannot be competitive if dry cooling is required. Its only  
6 support for this proposition is that the cost of energy it produces will be more expensive.  
7 However, the new CSP plants using dry cooling will have the same competitive posture  
8 as HVS. In effect, HVS wants a competitive advantage over these plants. It's not the  
9 Commission's job to provide such an advantage when none should exist. If HVS cannot  
10 be competitive with dry cooling, there are doubtless many other applicants who can.

11 **V. CONCLUSION**

12 Based on the foregoing, the Commission should amend the Certificate of  
13 Environmental Compatibility to require that HVS use the entire output of effluent from  
14 the city of Kingman. Additionally, the Commission should require dry cooling for the  
15 HVS project to the extent that effluent cannot supply all of the plant's needs.

16 RESPECTFULLY SUBMITTED this 29<sup>th</sup> day of July, 2010.

17 ARIZONA CENTER FOR LAW IN  
18 THE PUBLIC INTEREST

19 By   
20 Timothy M. Hogan  
21 202 E. McDowell Rd., Suite 153  
22 Phoenix, Arizona 85004  
23 Attorneys for Denise Bensusan  
24  
25

1 ORIGINAL and 13 COPIES of  
2 the foregoing filed this 29<sup>th</sup> day  
of July, 2010, with:

3 Docket Control  
4 Arizona Corporation Commission  
1200 W. Washington  
5 Phoenix, AZ 85007

6 COPIES of the foregoing  
7 mailed this 29<sup>th</sup> day of July,  
2010 to:

8  
9 Thomas H. Campbell  
Lewis and Roca, LLP  
10 Two Renaissance Square  
40 N. Central Avenue  
11 Phoenix, AZ 85004-4429  
12 *Attorneys for Hualapai Valley Solar, LLC*

13 Susan Moore-Bayer  
7656 W. Abrigo Drive  
14 Golden Valley, AZ 86413

15 Denise Herring-Bensusan  
16 c/o Crazy Horse Country Store  
8746 N. Stockton Hill Road  
17 Kingman, AZ 86409

18 Israel G. Torres  
19 Torres Consulting and Law Group LLC  
209 E. Baseline Road, Suite E-102  
20 Tempe, AZ 85283

21 Sarah N. Harpring  
22 Arizona Corporation Commission  
1200 W. Washington Street  
23 Phoenix, AZ 85007

24 Charles H. Hains  
25 Arizona Corporation Commission  
1200 W. Washington  
Phoenix, AZ 85007

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# **EXHIBIT 1**

STATE OF CALIFORNIA

Energy Resources Conservation  
and Development Commission

In the Matter of:

Application for Certification  
For the Genesis Solar Energy Project

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)  
) Docket No. 09-AFC-8  
)  
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Staff's Opening Brief

for Issues Raised at July 12 and July 13 Evidentiary Hearings

DATED: July 26, 2010

ROBIN MAYER  
Staff Counsel  
CARYN J. HOLMES  
Senior Staff Counsel

California Energy Commission  
1516 9<sup>th</sup> Street, MS-14  
Sacramento, CA 95817  
Ph: (916) 651-2921  
Fax: (916) 654-3843

(Letter from Gerald Zimmerman, Acting Executive Director, Colorado River Board of California, to Mike Monasmith, CEC Project Manager (July 2, 2010); CURE Exhibit 546.)

The operative word in the above paragraph is "if." Staff indicated in both its written testimony (RSA, C.-9.95) and during workshops that the U.S. Bureau of Reclamation has not determined that project wells would pump Colorado River water. Thus, neither the Colorado River Board nor the Energy Commission staff is recommending that the project owner obtain an entitlement to use Colorado River water.

Staff and the applicant have agreed that the project owner will offset any impacts on the Palo Verde Mesa Groundwater Basin that are caused by project pumping, and while staff and the applicant disagree as to whether these impacts ultimately affect the Colorado River, staff is confident that these offsets are sufficient to ensure that the project will cause no significant water supply impacts. (Evidentiary Hearing Transcript (July 13, 2010), pp. 49-50) (note statement at top of page 50 should be attributed to Energy Commission witness Michael Donovan, not applicant witness Michael Tietze).

#### B. Offsets to Palo Verde Mesa Groundwater Basin More than Make Up for Potential Impacts to the Colorado River

Water supply -- along with biological resources -- has been one of the more hotly contested issues in the Genesis proceeding. The applicant's recent decision to utilize air-cooled condensers rather than a wet cooling system for condensing steam has dramatically reduced the extent of impacts associated with project water supply. Staff applauds the applicant for this decision, and also expresses its gratitude to the applicant and other parties for their willingness to work cooperatively in addressing concerns about the residual effects associated with relatively small amount of water needed for other aspects of project operation.

The project will require the use of approximately 2600 acre-feet of water for the three-year construction process. (RSA, p. C.9-67). Most of that water is used for site preparation and dust suppression. (*Id.* At C.9-5) During operations, the applicant originally proposed to use 1,604 acre-feet per year (afy), most of which was for cooling. The decision to use dry cooling instead of wet cooling would reduce this amount to 202 afy. (*Id.* at C.9-67)

Staff analyzes water supply impacts for projects that propose to use groundwater by examining such issues as : 1) impacts to basin balance; 2) impacts to other groundwater users, such as near-by wells or groundwater dependent vegetation, due to changes in groundwater levels; 3) impacts to other hydrologically connected water systems; 4) subsidence; and 5) impacts to water quality. In this case, most of the attention was focused on the first three of these issues.

Staff conducted an analysis of the impacts of project water use, and determined that there were potential impacts to other groundwater users, a small risk of subsidence, and potential impacts to the Colorado River (which is hydrologically connected to the Chuckwalla Groundwater Basin from which project water would be pumped). Staff concluded that the other impacts were insignificant, and also concluded that Conditions of Certification agreed to by the applicant