

*We are stewards of an irreplaceable environment.  
This is an awesome task  
as well as a precious gift.*

*—President Jimmy Carter, 1980*

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<b>DOCKET</b>	
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RE: **Docket No. 07-AFC-5**

*This comment is on the proposed Ivanpah Solar Generating System. Data are taken from the “Presiding Member’s Proposed Decision” (CEC-800-2010-004 PMPD), August 2010.*

To Whom It May Concern:

My concerns are myriad.

If I had to single out one glaring issue, I’d pick the assumption that construction workers can be relied on to identify “archaeological materials”—which are legally sensitive, and otherwise must be identified and evaluated by trained professionals. “Archaeological materials” are things like tiny stone flakes and the sometimes subtle soil color changes that indicate what archaeologists call features. At least some of these construction workers are expected to do this identification from the elevated seat of a large machine like a bulldozer. Not even an archaeologist with years of experience could not do this consistently! And this responsibility is being conferred on a perhaps not particularly motivated heavy-machine operator, engineer, or other worker. **This scenario does not prioritize identification of often hidden and obscure archaeological resources.**

This issue may sound trivial, and a small component of the many involved in this project, but I view the way that this topic is treated as symbolic of the sometimes cavalier treatment given to the potential impacts of the Ivanpah Solar Generating System project throughout the whole “Proposed Decision.”

### ***Extent of impact area underestimated***

The Ivanpah project is planned for 3582 acres of Mojave Desert. 3582 acres is a large piece of ground. 3582 acres means the people of the US of A—in proxy for the creatures of the world—are entrusting us, via the California Energy Commission, to be thoughtful stewards of these precious and irreplaceable resources. Actually, **the project impacts far more than 3582 acres.**

According to the “Proposed Decision,” ecologically speaking it’s not just 3582 acres. On page 29 of the Biological Resources section: “The loss of approximately 3,582 acres of occupied habitat and fragmentation and disturbance to adjacent habitat...” **The area considered adjacent habitat is not given.**

Disruption of the natural sheet water flows by construction of the Ivanpah facility, noted on page 37 of the Biological Resources section as “2,000 ephemeral washes” (2000 is not a trivial number!), potentially has huge impacts for every living thing downstream. After all, the Ivanpah project area’s hydrological system is fed by mountain runoff; it stands to reason that interrupting that flow would impact the Ivanpah Valley system in notable ways. Later, on page 4 of the Soil and Water Resources section, **the storm water flows would be affected over a 13,900-acre area—far in excess of the 3582-acre project area—plus “adjacent habitat.”**

And it’s not just the land that will be removed from the ecosystem. This project needs fresh water, and water in a desert is as precious as the land surface. Even small demands on the ground water in a fragile landscape seriously alter the ecology. And 100 acre-feet per year is hardly small. Plus, how much will be needed for construction (e.g., for “dust abatement” on construction areas and roads)? Ah, on page 6 of the Soil and Water Resources section, the estimate is for 3 acre-feet per year for all three project phases. Again, a notable impact on a delicate desert ecosystem whether it comes from on-site wells or is shipped in. Evaporation from nightly mirror-washing activities is not an insignificant alteration, either.

Needless to say, if the impact area is larger than the 3582-acre project area, which is exactly what the “Proposed Decision” says, then, **by its own admission, this document does not fully address the impacts of the Ivanpah project.**

### ***Cultural resources***

Page 3 of the Cultural Resources section notes that the records search only examined the area within one mile of the project site (defined as...?), which sounds far less than the 3582-acre project area—plus “adjacent habitat,” or the minimal impacted area.

Compiling a “known inventory” is not the same as ground-truthing for cultural resources. Page 5 mentions reconnaissance and pedestrian surveys (forms of ground-truthing), but does not say how much of the impact/development area was covered. Conceivably, it

could be only a small percentage. The same page notes: “Significantly, the fieldwork did not result in the discovery of prehistoric or historic cultural resources or in any archaeological features or deposits with characteristics of Native American traditional use areas.” Absent information about the extent of the fieldwork areas, **this cannot be evaluated**. In addition, the fieldwork might have focused on areas unlikely to have archaeological features. **Sample surveys can miss unusual and significant resources**. And what about non-Native American archaeological resources?—this too is incompletely addressed.

On page 6 the report notes that “there is presently no reliable archaeological means to verify or refute the character or the use of the site to establish CRHR or NRHP eligibility” of the lone new archaeological resource identified in the project area. **No means to evaluate does not mean the resource is not notable**. Perhaps this language satisfies legal requirements, but is that sufficient? Their argument would be buttressed if they included comparative information about the relative rarity of linear rock features such as they show in Cultural Resources—Figure 2.

Page 11 does note that “unknown, unrecorded cultural resources” will have to be “discovered” and “treated in accordance with applicable federal and state laws and regulations.” Thus, **the cultural resource evaluation for this project is at present incomplete**, so assessments of those irreplaceable resources cannot be made until investigations noted under the conditions for certification are completed.

CUL-6 on page 20 relies on non-archaeologists (“anyone”) to identify potentially significant “archaeological materials.” While perhaps this stipulation sounds good, it is ill-conceived; such materials are special objects and often subtle features, and identification of them is not common knowledge among engineers and construction workers—or non-archaeologists. I do not think that a training program (which sounds like it concentrates on video presentations) is sufficient to enable even earnest workers to identify archaeological materials that can be difficult for specialists with years of experience to recognize on-site.

### ***Visual impacts***

Connecting transmission lines are, without a doubt, a visual blight. Yes, the fiber optics will be added to existing poles, but the connection to the transmission grid will be a new right-of-way. And the “Key Events List” includes a “Gas Pipeline”—again, not a trivial addition to the landscape—and for how many miles? Ah, six, I see, buried in the brief “Fuel and Water Availability” section. Not trivial, even if part of that is across the 3582-acre project area—plus the “adjacent habitat.”

In addition, the open distance of the desert views across the Ivanpah Valley will be eliminated by this project. These vistas are precious.

And we cannot overlook the 459-foot power tower (clever name, scary structure), including the 66-foot high receiving boiler at the top—oh, plus a 10-foot lighting pole—

that 469 feet, not the oft-cited 459 feet. So, this will emit steam? Even more visibility, if so (it has a steam drum...). Remember, a 469-foot tower is 1.56 football fields in height. That's tall! Note that in the Visual Resources section, these towers are referred to as only 459 feet tall; that 10-foot pole is ignored.

So, each field of heliostats will have its own power tower. Three 469-foot towers are not trivial. Take a look at Visual Resources Figure 2, for example. From this perspective (called near-middle-ground), the tower (probably modeled as only 459 feet tall!), comes three-quarters of the way up the mountains—which are tall.

### ***Ground-disturbing activities and dust***

Nor are the fields of 12-foot tall heliostats with their web of connecting communication tables trivial. Approval is sought for a total of 173,500 of those heliostats.... That means a huge amount of grading and concrete, plus more for access roads. Just the 15-foot wide dirt roads plus the 12-foot wide dirt roads plus the 10-foot wide maintenance paths totals nearly 32.8 miles of roads.

Air Quality page 16 C.c. “No vehicle shall exceed 10 miles per hour on unpaved areas within the construction site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.” Just how will those speeds be enforced? Governors on the vehicles? Good luck with those being the actual top speeds driven over those many, many miles.

In addition, page 4 of the Geology and Paleontology section notes that sinkholes form in the project area? What happens to the proposed infrastructure, including the heliostat fields if one—or several!—were to open up?

Usually such a facility has external fencing, and the fence line often has a parallel road. More habitat destruction. (I see on page 47 of the Biological Resources section that fencing within 90-foot wide transects indeed is noted, and the potential impacts on the gopher tortoise are discussed; more species than the tortoises will be adversely affected.) Grading and concrete mean more heat is generated in the immediate area, which will affect the temperatures and climatic conditions in the whole Mojave region.

### ***Other ecological costs***

The shipping of waste, including reject streams from water treatment, is not trivial. This spreads the impact for how many miles? For example, the distance to the Class I or Class II waste facilities is not noted. The same for shipping the Haz Waste....

There is an additional cost (both financial and ecological) in closing down this facility, and not as easy as stipulated in the section on Planned Closure. For example, “revegetation and rehabilitation” takes years. The replacement plants have to be grown, planted, and nurtured. In turn, the results of revegetation are not at all the same as the pre-construction ecosystem that existed when facility construction began. Plants are not

ecosystems. Where will the phainopeplas come from? How 'bout tiny critters? Nematodes? We cannot ignore that page 5 of the Geology and Paleontology section notes that some soils in the project area are “expansive;” where they occur they will be removed by deep excavation; this means that revegetation is additionally complicated by the lack of top soils, and my negative outcome concerns heightened.

Facility Design Table 1 has a long list of infrastructure not emphasized in the introduction. Yeah, it's on the 3582 acres—plus the “adjacent habitat,” but the project will introduce more than just fields of heliostats and 469-foot towers. Evaporation pits, for example, sound like notable disruptions to the alluvial plain.

I also am concerned about how plans might be modified to increase the impacts once the okay is received, and how the installation might be added to over time, so that the description here of impacts does not describe what the facility might affect in a decade or two. Of course, any new changes will be implemented in accordance with the law, including evaluation of impacts, but such potential changes and their attendant impacts are not even hinted at here.

### ***Special species***

The American Badger (*Taxidea taxus*) is listed on as a Special Status Species resident in the Ivanpah project area. Reducing the habitat of this not abundant species that dens in the project area now is not a trivial decision.

This project area stretches for a long distance northwest-southeast. Migratory—or at least aggressively ambulatory—land animals like the Nelson's Bighorn Sheep (*Ovis canadensis nelsoni*) will be impacted by this; again, if the facility is fenced, they cannot pass through on their current routes.

Regarding creatures, I must mention this from page 5 of the Override Findings: “these special-status species are not immune to the effects of climate change, but it is possible that they could adapt and survive if given enough time.” Just what is “enough time”? And **how do we evaluate this statement given the qualifier “it is possible.”** And how do we evaluate their adaptation and survival chances if there are three heliostat arrays and the rest of this facility in their territories?

### ***Vegetation issues***

In addition, I have concerns about the impact to vegetation from the 3582-acre—plus the “adjacent habitat”—facility. Here's a quote from page 23 of the Biological Resources section that raises concerns: “The native perennial shrubs would be weakened and diminished in size, utilizing less moisture and nutrients, and increasing sunlight available to the weeds.” Weakening of the perennial shrubs that are not removed means some will die and the species shift will be accentuated. These impacts are not resolved by mere “revegetation.”

## ***Closing concerns***

In short, the impacts as portrayed in the “Presiding Member’s Proposed Decision” are greater than they seem. This document **concentrates far more on costs and counts than on impacts**. This does us all a serious disservice, by making it difficult to assess the myriad costs of Ivanpah—costs beyond dollars and acres.

In addition, the \$1 billion (did I add correctly?) for all three Ivanpah heliostat fields and their infrastructure is Big Bucks. Just think how much better off we’d all be if, say, half that was allocated to innovative methods for REDUCING DEMAND. The payoff would be huge! This strategy just allows demand to float upwards. Sadly.

I just took a casual look at the planning document, and I admit that I quit reading the “Presiding Member’s Proposed Decision” at page 424 of the PDF, at the beginning of the Traffic and Transportation section. Even so, I have been able to spot serious problems with preparations for and evaluation of the impacts of the planned Ivanpah facility. I do not comment on many engineering or clean air impacts and issues, for example, although I am concerned because of what I can see that those impacts may well be more dramatic than portrayed in the “Presiding Member’s Proposed Decision.”

There is more than satisfying the letter of the law involved here.

My major observation is this: **deserts are not waste land, and should not be consumed without a thoughtful plan to reduce demand.**

I sincerely hope that you decision-makers will use every bit of your wisdom in weighing the overall situation we all have to deal with—energy demand—and not merely the decision about this plant. You do this for all of us.

Evaluating the environmental costs of this Solar Generating System involves significant alterations to the Ivanpah area ecology that are not highlighted in this document, although many of them are at least suggested, perhaps not always in the introduction, but deep in the nearly 600-page document.

Sincerely,



Charlotte A. Smith