

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:

APPLICATION FOR CERTIFICATION
FOR THE IVANPAH SOLAR
ELECTRIC
GENERATING SYSTEM

DOCKET NO. 07-AFC-5

DOCKET	
07-AFC-5	
DATE	<u>AUG 20 2010</u>
RECD.	<u>AUG 20 2010</u>

INTERVENOR WESTERN WATERSHEDS PROJECT

ADDITIONAL TESTIMONY FOR AUGUST 24, 2010

EVIDENTIARY HEARING, UPDATED LIST OF EXHIBITS

August 20, 2010

Michael J. Connor, Ph.D.
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INTERVENOR WESTERN WATERSHEDS PROJECT

ADDITIONAL TESTIMONY FOR AUGUST 24, 2010 EVIDENTIARY HEARING

Western Watersheds Project provides the following additional testimony, preliminary comments on the Presiding Member's Proposed Decision, and updated list of exhibits pursuant to the *Notice Of Availability Of The Presiding Member's Proposed Decision And Notice Of Committee Conference And Evidentiary Hearing And Notice Of Full Commission Hearing* issued August 3, 2010.

ADDITIONAL TESTIMONY

The attached testimony *ADDITIONAL TESTIMONY OF MICHAEL J. CONNOR REGARDING DESERT TORTOISE TRANSLOCATION* was prepared by Michael J. Connor (Connor Declaration attached) in response to new information disclosed in the Bureau of Land Management's recently released Final Environmental Impact Statement for the project. Dr. Connor will be available to testify by telephone on August 24, 2010.

PRELIMINARY COMMENTS ON THE PRESIDING MEMBER'S PROPOSED DECISION

Western Watersheds Project will submit comments on the Presiding Member's Proposed Decision by the close of the public comment period.

The Proposed Decision incorrectly states that the I-15 alternative was suggested by intervenors Sierra Club and Western Watersheds Project. Western Watersheds Project neither suggested nor endorsed the I-15 alternative. Western Watershed Project did request that the Commission consider an alternative that would locate the project on a site that would allow the project to proceed but would avoid impacts to desert tortoise and other biological resources such as the Ivanpah dry lake playa.

Western Watersheds Project strongly disagrees with the Presiding Member's conclusion that impacts to desert tortoise will be fully mitigated. Western Watersheds Project concurs with the Presiding Member's conclusion that the project, even with the mitigation measures described in this Decision, will have remaining significant impacts on the environment. However, Western Watersheds Project strongly disagrees that the benefits of the proposed ISEGS project merit findings of overriding concern for those impacts.

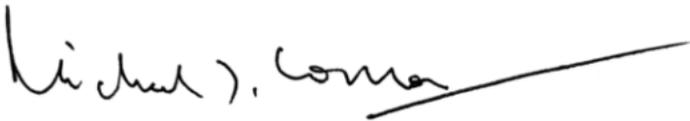
UPDATED LIST OF EXHIBITS

Exhibit Number	Author and Title
521	Intervenor Western Watersheds Project Additional Testimony For August 24, 2010 Evidentiary Hearing, Updated List of Exhibits
522	Western Watersheds Project's February 11, 2010 comment letter to George Meckfessel, Bureau of Land Management RE: Draft Ivanpah Solar Electric Generation System Environmental Impact Statement and the Draft California Desert Conservation Area Plan Amendment dated November 10, 2009.
523	Western Watersheds Project's May 31, 2010 comment letter to George Meckfessel, Bureau of Land Management RE: Supplemental Draft Environmental Impact Statement for Ivanpah Solar Electric Generation System dated April 13, 2010 (DES-09-46).

ATTACHMENTS: Declaration of Michael J. Connor
Additional Testimony of Michael J. Connor
Exhibit 522
Exhibit 523
Certificate of Service

Dated: August 20, 2010

Respectfully submitted,

A handwritten signature in black ink that reads "Michael J. Connor". The signature is written in a cursive style and is underlined with a single horizontal line.

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STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:

APPLICATION FOR CERTIFICATION
FOR THE IVANPAH SOLAR
ELECTRIC
GENERATING SYSTEM

DOCKET NO. 07-AFC-5

IVANPAH SOLAR ELECTRIC
GENERATING SYSTEM (ISEGS)
(Docket 07-AFC-5)

INTERVENOR WESTERN WATERSHEDS PROJECT
Declaration of Michael J. Connor
Additional Testimony Regarding Desert Tortoise Translocation

I, Michael J. Connor, declare as follows:

- 1) I am the California Director for Western Watersheds Project. I have worked for Western Watersheds Project since spring 2007.
- 2) My relevant professional qualifications and experience are set forth in the *curriculum vitae* and the testimony that were submitted on December 18, 2009 and are incorporated herein by reference.
- 3) I prepared the additional testimony attached hereto and incorporated herein by reference, relating to the impacts of the Project on desert tortoise.
- 4) I prepared the additional testimony attached hereto and incorporated herein by reference relating to the proposed Project in the Ivanpah Valley in San Bernardino County.
- 5) It is my professional opinion that the attached rebuttal testimony is true and accurate with respect to the issues that they address.
- 6) I am personally familiar with the facts and conclusions described within the attached testimony and if called as a witness, I could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: August 20, 2010

Signed: MJ Connor

At: RESNOA, CALIFORNIA

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:

APPLICATION FOR CERTIFICATION
FOR THE IVANPAH SOLAR
ELECTRIC
GENERATING SYSTEM

DOCKET NO. 07-AFC-5

**ADDITIONAL TESTIMONY OF MICHAEL J. CONNOR REGARDING
DESERT TORTOISE TRANSLOCATION**

To the best of my knowledge, all of the facts contained in this testimony are true and correct. I am personally familiar with the facts and conclusions described within this testimony and if called as a witness, I could testify competently thereto. My qualifications and experience have been provided with previous testimony. Through this additional testimony, I also re-adopt all my previous testimony.

STATEMENT

The recently released FEIS¹ describes a new desert tortoise translocation proposal for the ISEGS project. Tortoises on the ISEGS site that need to be translocated will be moved to the National Park Service's Mojave National Preserve. This will involve a two-step process in which the tortoises will be moved to a holding facility and eventually released on yet-to-be identified sites on the Preserve. This new proposal involving an additional government agency raises new issues that have not been addressed or analyzed in any of the CEQA documents for this project. In my opinion it increases the risk that California's entire Northeastern Mojave desert tortoise population could be lost.

The southern Ivanpah Valley within Mojave National Preserve includes the highest density population of Northeastern Mojave ESU desert tortoises. The Ivanpah permanent study plot is located there. There is evidence that this population has declined recently possibly due to lack of recruitment caused by excessive loss of juveniles from predation. Mojave National Preserve is considering a head-starting project to attempt to augment this desert tortoise population. It is that head-starting facility that will be used to temporarily house any tortoises translocated from the ISEGS site.

¹ Final Environmental Impact Statement for the Ivanpah Solar Electric Generation System (DES-09-46). USDI Bureau of Land Management. Dated April 13, 2010. Available on-line at: http://www.blm.gov/ca/st/en/fo/needles/nefo_nepa.html

Translocation of desert tortoises is controversial and carries a high risk not just to the translocated animals but to resident tortoises at the recipient sites. The DRECP's Independent Science Advisors consider translocation of desert tortoise to be an ineffective mitigation action in their recent draft recommendations. Major risks of translocation were clearly delineated in the 1994 Recovery Plan² and include: (1) the tendency of the released desert tortoises to travel or wander from the site or attempt to return home; (2) increased vulnerability to predators; (3) the potential for agonistic responses from resident or host desert tortoises; (4) the potential for introducing or spreading diseases; and, (5) genetic pollution.

All of these risk factors need to be carefully considered especially given the importance of conserving the Mojave National Preserve's Ivanpah Valley tortoises in the light of the cumulative effects of ISEGS and other solar projects on California's small Northeastern Mojave desert tortoise population.

The Recovery Plan recommends "All translocatees should be genotyped unless the desert tortoises are to be moved only very short distances or between populations that are clearly genetically homogeneous."² The Northeastern Mojave Recovery Unit is the most heterogeneous of the recovery units and includes at least three mtDNA haplotypes [Recovery Plan at 21; Britten et al, 1997³]. Most of the tortoises in the Ivanpah Valley are probably South Las Vegas subtype; however, at least one tortoise of the Amargosa subtype was found in the project vicinity.⁴ The new translocation proposal adds the increased risk of genetic pollution to the impacts the ISEGS project will have on the threatened desert tortoise.

The Mojave National Preserve's management plan⁵ does not consider using preserve lands as recipient sites for translocated desert tortoises. 36 CFR 2.1 generally prohibits "Introducing wildlife, fish or plants, including their reproductive bodies, into a park area ecosystem". It is therefore unclear how the National Park Service could accept the tortoises without doing its own National Environmental Policy Act analysis.

This new translocation proposal is problematic and poorly thought through. It is symptomatic of the ISEGS project's rushed and inadequate environmental review.

² Fish and Wildlife Service. 1994. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. Pages B2 and D6-D7.

³ Britten, H. B., Riddle, B. R., Brussard, P. F., Marlow, R. and Lee, Jr., T. E. 1997. Genetic Delineation of Management Units for the Desert Tortoise, *Gopherus agassizii*, in the northeastern Mojave Desert. *Copeia* 1997: 523-530. Exhibit 510.

⁴ Hagerty, B. 2008. Ecological Genetics of the Mojave Desert Tortoise. PhD. Dissertation. University of Nevada, Reno. 244 pp. Page 204.

⁵ Available on-line at: <http://www.nps.gov/moja/parkmgmt/gmp.htm>

EXHIBIT 522



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Working to protect and restore Western Watersheds

February 11, 2010

BY US MAIL AND BY EMAIL

George Meckfessel
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RE: Draft Ivanpah Solar Electric Generation System Environmental Impact Statement and the Draft California Desert Conservation Area Plan Amendment dated November 10, 2009.

Dear Mr. Meckfessel:

Western Watersheds Project is pleased to provide the following comments on the Draft Ivanpah Solar Electric Generation System Environmental Impact Statement and the Draft California Desert Conservation Area Plan Amendment ("FSA/DEIS"). The closing date for public comment is February 11, 2010 so this letter is timely.

Western Watersheds Project works to protect and conserve the public lands, wildlife and natural resources of the American West through education, research, public policy initiatives and litigation. WWP has a particular interest in the California Desert Conservation Area and our staff and members use and enjoy the project area's public lands and fragile resources.

The proposed power plant project would be located on relatively undisturbed public lands in California that are habitat for the state and federally listed desert tortoise, and that provide habitat for rare plant species and communities. The proposed project will have significant direct, indirect and cumulative impacts on desert tortoises, rare plants, and visual resources. The BLM fails to consider and analyze alternatives that would allow the project to proceed without impacting desert tortoises, rare plants, and visual resources. As we discuss below, BLM's documentation of the impacts of the proposed action is inadequate. The DEIS fails to identify, document and analyze specific mitigation measures. Based on our review of the BLM's DEIS, it seems unlikely that the general mitigation measures proposed would reduce the environmental impacts of the proposed action to less than significant.

(1) Alternatives.

The consideration of alternatives “is the heart of the environmental impact statement.” 40 C.F.R. § 1502.14. The NEPA implementing regulations specify that NEPA documents must analyze a full range of alternatives. Based on the information and analysis presented in the sections on the Affected Environment (40 C.F.R. § 1502.15) and the Environmental Consequences (40 C.F.R. § 1502.16), the NEPA document should present the environmental impacts of the proposed action and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. The regulations specify that agencies shall:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include the alternative of no action.
- (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

In this case, the BLM has considered only two alternatives, granting the right-of-way (the “proposed action”) and not granting the right-of-way (“no action”). This is an entirely inadequate range of alternatives and violates both the letter and spirit of NEPA. This is especially so given the specific requirement to “Include reasonable alternatives not within the jurisdiction of the lead agency” since the CEC considers multiple alternatives in the associated FSA.

Because of the scale of the project it is unlikely that minor changes in footprint would reduce the direct, indirect, and cumulative effects of the project to less than significant. Neither the BLM nor the CEC considered alternative sites that would avoid significant impacts to desert tortoise but that would allow the project to proceed. One such location within the immediate project vicinity that would avoid desert tortoise habitat is Ivanpah Dry Lake bed. This alternative site location was raised at public meetings, was proposed by the Sierra Club in its June 22, 2009 letter, was referenced by CDFG in its October 27, 2009 letter, and should have been considered in the FSA/DEIS. While construction of the power plant at this site may require some additional engineering to accommodate flooding, the lake bed is crossed by both a freeway (I-15) and a power line so such accommodation is clearly possible. There are proposals to locate solar power plants on and adjacent to dry lake beds in other areas of the CDCA. Locating the power plant on the lake bed by the state line would minimize impacts to visual resources since it would be closer to existing developments, would avoid desert tortoise habitat, and would avoid impacts to rare plants. Restoration of the dry lake bed would likely be much easier once the plant is decommissioned. The lake bed covers 35 square miles and provides ample space to

accommodate existing recreational uses and the proposed ISEGS project. The BLM should consider this alternative in a supplemental draft EIS.

(2) Desert Tortoise.

The proposed power plant project will have severe direct, indirect and cumulative impacts on California's Northeastern Mojave tortoise population. The impacts include destruction and loss of habitat, take of tortoises, habitat fragmentation, population fragmentation, loss of connectivity, and loss of viability.

Significance of the Northeastern Mojave Population

The 1994 *Desert Tortoise (Mojave Population) Recovery Plan* recognized six Recovery Units within the listed Mojave desert tortoise population (USFWS 1994). The recovery units are defined as geographic areas that harbor Evolutionarily Significant Units (ESU) or evolutionarily distinct populations of desert tortoise. An ESU is a population, or group of populations, that represents significant adaptive variation within the species (USFWS 1994). The six desert tortoise ESUs were identified on the basis of genetic, morphological, behavioral, and ecological data. Subsequent detailed genetic analysis has offered independent support for the original ESU designations (Murphy et al, 2007). Five of the six ESUs occur wholly or partly in California. The proposed ISEGS site lies within the Northeastern Mojave Recovery Unit. This recovery unit extends from the Ivanpah Valley in California through Nevada and into extreme southwestern Utah and northwestern Arizona (USFWS 1994 Figure 9). The tortoises in the Recovery Unit shows some degree of genetic heterogeneity (Lamb *et al.*, 1989; Britten et al, 1997; USFWS 1994, USFWS 2008) consistent with natural barriers. The Recovery Unit is also heavily fragmented by human development and includes the greater Las Vegas conurbation.

The FSA/DEIS fails to provide crucial baseline information such as the amount of habitat in the Northeastern Mojave Recovery Unit in California, and fails to adequately document impacts to this resource. Without an adequate description of the ESU, a full analysis of the impacts of the proposed project is impossible, nor is a meaningful comparison of alternatives or the development of adequate mitigation measures possible.

In California, the Northeastern Mojave desert tortoises are restricted to the Ivanpah Valley with the boundaries marked by the Clark, Ivanpah, and New York Mountains. The California Natural Diversity Database (CNDDDB) estimates the size of the desert tortoise habitat within the Recovery Unit in California at 184,519.6 acres (CNDDDB 2009). The CNDDDB polygon excludes most of the Ivanpah Dry Lake bed but includes Interstate 15, Nipton Road, Ivanpah Road, Nipton, Ivanpah, the railroad, the Primm golf course, some mountainous terrain and other unsuitable habitat (see CNDDDB 2009b for a map showing the polygon). It thus considerably overestimates the amount of Northeastern Mojave desert tortoise habitat in California. Based on the CNDDDB polygon the North Ivanpah Valley accounts for about 24% or almost a quarter of all desert tortoise habitat in the Northeastern Mojave Recovery Unit in California.

In 1988, the BLM began categorizing desert tortoise habitat under its range wide plan for desert tortoise habitat management (Spang *et al*, 1988). The North Ivanpah area was categorized as category I habitat and was managed as such until the signing of the ROD for the NEMO Plan Amendment in December 2002. The *Desert Tortoise (Mojave Population) Recovery Plan* included the North Ivanpah Valley within the proposed Ivanpah DWMA (USFWS 1994 at 41). The 1994 Recovery Plan included the North Ivanpah Valley in its proposed Ivanpah DWMA (see USFWS 1994 Figure 9). The NEMO Plan's Desert Tortoise Biological Team recommended consideration of the North Ivanpah Unit by the BLM for desert tortoise conservation in the NEMO Planning Area (NEMO Plan at A3). The 2002 EIS for the NEMO Plan recognized the value of the North Ivanpah Valley for desert tortoise and considered an alternative that included designating the North Ivanpah Unit as an Area of Critical Environmental Concern (ACEC) and part of the Ivanpah DWMA. However, the NEMO Plan's preferred and adopted alternative focused desert tortoise recovery on the Eastern Mojave Recovery Unit to the detriment of the Northeastern Mojave Recovery Unit in California and the North Ivanpah Valley was not included in the Ivanpah DWMA. Under the NEMO Plan, all desert tortoise habitat outside DWMA's was reclassified as Category III. The designation Category III does not mean that the habitat is degraded, contains low tortoise densities, or is unimportant it simply means it is not currently within a designated DWMA. The BLM manages all categorized desert tortoise habitat to protect desert tortoise with the management goal for Category III habitat being to limit tortoise habitat and population declines. The change in designation had no effect on the habitat *per se*. It remains good quality desert tortoise habitat. The basis for this change in designation was the BLM's focus on the Eastern Mojave ESU – "The preferred alternative is to propose that USFWS modify recovery unit boundaries so that all of NEMO is part of the Eastern Mojave Recovery Unit. Currently a portion of the planning area is in the Northern and Eastern Mojave Recovery Unit, but it forms a cohesive unit with the rest of the Eastern Mojave Desert tortoise habitat. Strategies for the Northern and Eastern Mojave Recovery Unit are focused firstly in areas northeast of Las Vegas, and secondarily, in an area north of Nipton Road in an area of Nevada that is not adjacent to the state line." NEMO Plan at 1-3.

Tortoises in the Ivanpah Valley differ from other desert tortoise populations in California (Lamb, 1986; Lamb *et al.*, 1989; Murphy *et al.*, 2007). Northeastern Mojave desert tortoises exhibit the greatest genetic differentiation of the five recognized units occurring in California (Murphy *et al.*, 2007). According to the DEIS, the desert tortoise population in the North Ivanpah Valley is also unique because it is the highest elevation at which this species is known to reside in the state (PSA/DEIS at 6.2-29).

The limited range, overall importance to genetic diversity, and behavioral adaptations underlie the need to conserve this desert tortoise population in California. This is especially important given the threats posed by global climate change. As the USFWS 2008 Draft Revised Recovery Plan notes, "Climatic regimes are believed to influence the distribution of plants and animals through species-specific physiological thresholds of temperature and precipitation tolerance. Warming temperatures and altered precipitation patterns may result in distributions shifting northward and/or to higher elevations, depending on resource availability (Walther *et al.* 2002). We may expect this response in the desert tortoise to reduce the viability of lands currently identified as "refuges" or critical habitat for the species." (USFWS 2008 at 133)

The 2002 EIS for the NEMO Plan recognized the value of the North Ivanpah Valley for desert tortoise. It considered an alternative (Alternative 2 “Desert Tortoise Recovery”) that included designating the North Ivanpah Unit as an Area of Critical Environmental Concern (ACEC) and part of the Ivanpah DWMA. However, the NEMO Plan’s preferred and adopted alternative focused on the Eastern Mojave Recovery Unit. Thus the FSA/DEIS cannot simply defer to the NEMO Plan’s analysis since that plan did not address conservation of the Northeastern Mojave desert tortoise ESU nor did it address California State interests in these tortoises.

The 1984 status report tortoise density map of the Ivanpah Valley indicates that tortoise densities in the North Ivanpah Valley ranged from 20-100/sq mile with about half of the habitat (including the area of the power plant footprint) in the range of 50-100/sq mile (Berry et al., 1984 Plate 6-13). The most recent range wide monitoring survey report shows that tortoise densities within the Northeastern Mojave Recovery Unit are the lowest of the six recognized Recovery Units, with an estimated density of 1.7 tortoises/square km or 4.4 tortoises/square mile based on surveys conducted in 2007 (USFWS 2009). However, that estimate does not include the Ivanpah Valley which historically had some of the highest tortoise densities in the Northeastern Mojave Recovery Unit. The USFWS currently includes the Ivanpah Valley within its Ivanpah monitoring stratum; the majority of the stratum is located west of the Ivanpah Mountains in the Eastern Mojave Recovery Unit (see Figure 7 in USFWS 2009). For the 2007 survey, only one of the sixteen transects was within the Ivanpah Valley. Both factors make using the Ivanpah monitoring stratum data problematic for estimating tortoise densities in the Ivanpah Valley. There is a permanent study plot located in the southern end of the valley in an area that was identified as having a high tortoise density in the 1984 status report (Berry et al., 1984 Plate 6-13). The study plot population declined between 1986 and 2002. More recent density estimates are not yet available.

Impacts

Habitat Loss

The footprint of the proposed power plant will consume some 4,073 acres (about 6.4 square miles) of desert tortoise habitat. Based on the CNDDDB data referenced above, this amounts to 2.2% of the Northeastern Mojave Recovery Unit in California. Since the CNDDDB acreage is an overestimate, the actual percentage loss is higher and may be considerably higher. The NEMO Plan identifies the North Ivanpah Valley as consisting of approximately 29,110 acres, of which about 27,300 acres are BLM-managed public lands (NEMO Plan at A-3). Based on that data the power plant would consume 14% of the North Ivanpah Valley Unit and 15% of the public land. Since the North Ivanpah Valley accounts for 24% of the habitat identified in the CNDDDB, the footprint may consume 4-5% of the actual Northeastern Mojave ESU desert tortoise habitat in California.

Mitigating for direct impacts on this scale is difficult. However, other major projects are also being proposed in the North Ivanpah Valley not the least of which are an additional power plant and the DesertExpress railway. In the face of the massive cumulative habitat loss and fragmentation that will occur if these projects proceed, it is difficult to imagine how a viable

tortoise population could persist in the North Ivanpah Valley. As such, the cumulative impacts threaten to eliminate nearly a quarter of the range of the Northeastern Mojave ESU in California.

Take of Tortoises

The FSA/DEIS is unclear as to how many tortoises will be directly affected by the proposed power plant and cites only the numbers of animals seen in various surveys. Table 5 of the August 2009 survey report (Supplemental Data Response, Set 2I at 9) provides estimates of the adult tortoise densities on the Ivanpah 1, Ivanpah 2 and Ivanpah 3 sites for comparison with the later surveys performed in proposed translocation areas. As was revealed at the recent CEC Hearing that table is incorrect. Based on the corrected data, the estimated abundances are 2.9 tortoises/sq km on Ivanpah 1, 1.7 tortoises/sq km on Ivanpah 2, and 2.6 tortoises/sq km on Ivanpah 3. These values are comparable to or higher than the 1.7 tortoises/square km estimated from surveys of conservation areas within the Recovery Unit conducted during the range-wide line-distance sampling effort (USFWS 2009). The estimated densities are about the twice the number of adult tortoises encountered during surveys. Thus the estimated number of tortoises on the project site is approximately 50 adults with an unknown number of young. This does not include the unknown number of resident tortoises at the proposed translocation site that may be affected by the translocation nor tortoises that may be impacted by the increased use of roads in the area.

Connectivity

Connectivity between desert tortoise populations is essential to maintain gene flow and genetic heterogeneity. The FSA/DEIS mentions connectivity but provides no discussion or analysis. The FSA/DEIS at 6.2-57 states that connectivity “will be discussed in more detail below”. Connectivity is then included in the list at FSA/DEIS 6.2-72 but no further detail, discussion or analysis is provided.

According to the *Draft Revised Desert Tortoise Recovery Plan* (at 46), connectivity between the Northeastern Mojave and Eastern Mojave desert tortoise ESUs is provided by the Mountain Pass area in California. Disruption of this connectivity poses a threat to the genetic diversity of the Mojave population as a whole. Because the proposed project will impact tortoises in the area identified as providing connectivity, impacts to connectivity between the tortoises in the Northeastern Mojave Recovery Unit and the adjacent Eastern Mojave Recovery Unit must be considered and fully addressed.

The Ivanpah Valley desert tortoise population is threatened with isolation from tortoises in the rest of the Northeastern Mojave Recovery Unit by existing and proposed developments in Nevada’s Primm Valley. The BLM must also consider connectivity between the Ivanpah Valley desert tortoise population and the rest of the Northeastern Mojave ESU.

Fragmentation

Fragmentation of occupied desert tortoise habitat results in smaller, isolated desert tortoise populations that become increasingly susceptible to negative effects. Fragmentation is particularly problematic when population densities are low. Fragmentation decreases viability and results in isolated “pockets” of desert tortoises that are at greater risk of extirpation from stochastic events. The FSA/DEIS mentions fragmentation of habitat but does not quantify the

degree of fragmentation nor does it provide an analysis of the viability of the fragmented desert tortoise populations. The proposed ISEGS site bisects the North Ivanpah Valley and will directly fragment the existing breeding population. Indirect effects of the proposed project such as increased use by vehicles and “improvement” of dirt roads will lead to further fragmentation.

The Ivanpah Valley desert tortoise population is threatened with isolation from tortoises in the rest of the Northeastern Mojave Recovery Unit by existing and proposed developments in the Primm Valley in Nevada. The proposed project will contribute to the fragmentation effects of these proposed and existing developments. These cumulative fragmentation effects must be considered and addressed.

Translocation

The proposed project and the other projects proposed for the project area will require the large-scale movement and translocation of desert tortoises within the North Ivanpah Unit. Translocation of desert tortoises is highly controversial as witnessed with the BLM’s withdrawal of its “*Environmental Assessment for the Translocation of Desert Tortoises onto Bureau of Land Management and Other Federal Lands in the Superior-Cronese Desert Wildlife Management Area, San Bernardino County, California Bureau of Land Management Environmental Assessment*” (CA-680-2009-0058) immediately following the close of the public comment period. There is no consideration in the CDCA Plan for large-scale desert tortoise translocation. Therefore, the BLM must include a detailed translocation plan for the project in its NEPA documentation.

No final translocation plan has been made available for to the public to review. The BLM must make this available for public comment prior to issuing its decision. The project applicants have identified four sites west of the proposed project as possible translocation sites. However, the northernmost of these is within the footprint of the proposed railway line and would not appear to be suitable for that reason alone. The tortoise densities on these proposed translocation sites are unknown since adequate surveys have not been performed. However, if the tortoise densities are comparable to those on the project site then translocation is likely to double the densities on the translocation sites. If the tortoise densities on the proposed translocation sites are lower than the project area, the ecological conditions underlying this need to be examined and explained.

The surveys on the translocation sites referenced in the DEIS were performed outside the protocol season (PSA/DEIS at 6.2-50). The USFWS protocol survey relies on using standard values for estimating the proportion of desert tortoises above ground and available for detection (Pa). These Pa values are based on average proportions of transmittered tortoises found above ground from earlier range-wide line-distance sampling surveys conducted during the spring survey season. Tortoise activity is highly seasonal. The proportion of tortoises above ground changes with time and may decrease dramatically in July. Because of this, use of the standard Pa values for surveys conducted outside the season will underestimate abundance. A reasonable estimate of the abundance of tortoises in the relocation areas is essential to evaluate potential impacts to resident tortoises from the proposed relocation. The density of tortoises on the project site and the density of resident tortoises in the proposed relocation and translocation areas should

be determined using appropriate survey techniques so that the extent of the impacts can be determined.

The habitat surveys conducted in the relocation areas do not include surveys of the annual plants that tortoises depend upon for their survival (USFWS 1994). The nutritional status of wild tortoises may depend more on availability of plant species of high nutritional quality than on overall amounts of annual vegetation (Ofstedahl and Allen, 1996). Without data on the quantity and quality of available forage it is unclear if the current carrying capacity of the proposed relocation sites is sufficient to support additional tortoises. This is important since the 1984 status report tortoise density map of the Ivanpah Valley (Berry et al., 1984 Plate 6-13) indicates that historic tortoise densities in the North Ivanpah Valley were not uniform and may have been lower at the translocation sites compared to the project site.

BLM Handbook 1745 requires that activity plans for translocations must be site-specific and include “Site-specific and measurable vegetation/habitat population objectives which are based on existing ecological site potential/condition, habitat capability, and other important factors.” The DEIS does not adequately describe existing ecological conditions nor does it address the capacity of the habitat at the translocation sites to support additional tortoises. It has been established that livestock compete with desert tortoises for important food plants (Avery and Neibergs, 1997; Avery, 1998). The BLM must analyze impacts from competition for food plants by cattle on the likely success of translocating tortoises to these sites and provide mitigation for any impacts identified.

Environmental stressors may contribute to disease outbreaks in desert tortoise populations particularly Upper Respiratory Tract Disease (Sandmeier *et al.*, 2009). The BLM should require that the health status of resident and translocated tortoises be evaluated so that movement of *Mycoplasma* infected tortoises can be controlled.

Desert tortoises may make long-distance movements following relocation (FSA/DEIS at 6.2-50). Because of this, it is critical that fencing along I-15 be in place prior to any tortoise translocations being undertaken because translocated or relocated tortoises may make long distance movements. This must be specified in the translocation plan component of the EIS.

Summary

In summary, the direct, indirect, and cumulatively impacts of the proposed project on the threatened desert tortoise will be severe. Since the Northeastern Mojave population is the most genetically distinct desert tortoise population in California, and the North Ivanpah Valley desert tortoises exhibit behavioral adaptations that may be important for the long-term survival of the species, protection of these tortoises may well be critical to the conservation of the entire listed population in California. We are extremely concerned that the impacts of the proposed project will endanger California’s Northeastern Mojave desert tortoise population, and will place the entire Mojave desert tortoise population at risk.

(3) Bighorn Sheep.

The FSA/DEIS fails to fully analyze impacts to bighorn sheep, provide alternatives to avoid impacts, or provide measures to minimize these impacts. The suggested mitigation measure of adding an artificial water source in the Clark Mountain area will not mitigate for the loss of bajada foraging habitat. The FSA/DEIS also fails to identify and analyze the impacts associated with the construction and maintenance of this artificial water source such as facilitating raven presence in the North Ivanpah Valley. The BLM should consider removal of cattle from the Clark Mountain Allotment and locating the project elsewhere as mitigation and avoidance measures.

(4) Other Sensitive Species.

The NEMO Plan set the goal for special status species as “Populations and their habitats are sufficiently distributed to prevent the need for listing” (NEMO Plan at 2-6). The FSA/DEIS fails to fully analyze impacts to gila monsters, burrowing owl, other bird species, bats, and other wildlife or to provide alternatives to avoid impacts, or provide measures to minimize impacts. In doing so, it fails to meet NEPA’s requirements or satisfy the NEMO Plan’s objectives.

(5) Rare Plants.

The NEMO Plan set the goal for special status species as “Populations and their habitats are sufficiently distributed to prevent the need for listing” (NEMO Plan at 2-6). For rare plants and special status plant communities the FSA/DEIS provides too little analysis of impacts, inadequate discussion of alternatives that could avoid impacts, and inadequate information about the proposed mitigation strategy and how it will fulfill the objectives laid out in NEMO. The lack of fall surveys likely under-represents the full suite of rare plant taxa occurring on site. The FSA/DEIS concludes that the ISEGS project will result in "impacts to Mojave milkweed and Rusby’s desert-mallow" that "would remain significant in a CEQA context even after implementation of the special-status plant impact avoidance and minimization measures described in Energy Commission staff’s proposed conditions of certification." (FSA/DEIS p. 1-18) The best way to avoid significant impacts to rare plants occurring at this site is to relocate the project to another, lower resource value site but this was not considered by the BLM in the FSA/DEIS.

(6) Invasive Species.

The FSA/DEIS fails to fully analyze the project’s direct, indirect, and cumulative effects on the spread of invasive weeds and the potential increase in wildfire risks. Water run-off from the washing the mirrors will promote invasive plant growth year-round and increased use of the area will help disperse invasive plant seeds throughout the area. The DEIS does not explain how invasive species will be controlled on the project site.

(7) Visual Resources.

Visual resources are important public resources identified in both FLPMA and the CDCA Plan. The Clark Mountains, part of the Mojave National Preserve, rise to almost 8,000 feet from the Ivanpah Valley and view of the mountains from the valley will be marred by the ISEGS project's power towers, each rising to 459 feet above the valley and array of 428,000 mirrors. Scenic views from two wilderness areas (Mesquite and Stateline) will also be adversely affected. Hundreds of thousands of visitors pass through the Ivanpah Valley annually. While most of these simply pass through along the major highways, many visitors do stop to visit, use and enjoy the Ivanpah Valley's public lands, Mojave National Preserve, Wilderness Areas, and recreation areas. The proposed project will significantly impact visual resources for these visitors. In the FSA/DEIS the BLM has failed to identify alternatives or mitigation measures that will avoid these impacts other than the "no action" alternative.

(8) Cumulative Impacts.

The proposed project in conjunction with other projects in the area will have significant cumulative effects on the areas resources especially to desert tortoise, rare plants, and visual resources.

The FSA/DEIS fails to adequately consider that the population of the Northeastern Mojave ESU desert tortoises the Ivanpah Valley is unique in California and is at high risk of extirpation from the state from the cumulative effects of this project, the Optisolar (now First Solar) power project adjacent to ISEGS, the proposed DesertXpress High Speed Passenger Train, and the upgrade of the Eldorado-Ivanpah transmission line in California alone. The cumulative effect of these projects will be to convert the Northern Ivanpah Valley Unit into a *de facto* solar zone and industrial zone which no longer supports multiple use nor provides habitat for desert tortoise and other wildlife.

In addition to ISEGS and Optisolar (First Solar) on the northeastern slopes of the Clark Mountains, two solar energy generation facilities are proposed by NextLight Renewable Power on 7,840 acres of public lands on the Nevada (Primm Valley) portion of the Ivanpah Valley. These lands are also high quality desert tortoise habitat with intact and robust populations of desert tortoise. The FSA/DEIS fails to adequately assess the cumulative impacts from these projects and other solar projects on the Nevada side of the border to Northeastern Mojave ESU desert tortoises. The impacts include destruction and loss of habitat, take of tortoises, habitat fragmentation, population fragmentation, loss of connectivity, and loss of viability. The cumulative impacts of these developments severely threatens the long-term survival of the Northeastern ESU desert tortoises in the entire Ivanpah basin and threatens to sever connectivity between this and other Recovery Units thus compromising recovery. Since the Northeastern Mojave population is the most genetically distinct desert tortoise population in California, protection of these tortoises may well be critical to the survival of the four other Recovery Units found in California. The cumulative impacts threaten to endanger California's Northeastern Mojave desert tortoise population, and this places the entire desert tortoise population in California at risk.

The FSA/DEIS fails to adequately identify and analyze the cumulative impacts and the growth inducing impacts of the project which in this instance are closely tied together. While review of the Optisolar application has yet to begin, the high cost of the Eldorado-Ivanpah transmission upgrade provides a compelling economic incentive for approval of the Optisolar project, virtually ensuring yet another solar power project on prime desert tortoise habitat in the northern Ivanpah Valley. Arguably, neither project alone could amortize the cost of the proposed Eldorado-Ivanpah upgrade, which involves the construction of 35 miles of high voltage lines from California into Nevada and separate telecommunications pathways. The cumulative impacts from these two projects on the northern Ivanpah Valley are not adequately assessed and the growth inducing impacts from the approval of one project on the entire area is not adequately assessed or analyzed.

Cumulative impacts to special status plants are recognized (Executive Summary, FSA/DEIS, p. 1-15) but the FSA/DEIS has failed to adequately analyze these cumulative impacts across the range of these species and ways to avoid and minimize these impacts.

(9) Compliance with the Land Use Plan and BLM Policy.

The governing land use plan for the project area is the CDCA Plan as amended by the 2002 NEMO Plan Amendment.

The NEMO Plan's mitigation for Category III habitat applies to projects of less than 100 acres. NEMO at 2.27. The proposed project is over forty times the maximum acreage for projects covered under the NEMO Plan. The NEMO Plan did not address California State interests in the Northeastern Mojave desert tortoise population. The NEMO Plan does not even list CDFG as one of the agencies consulted (See NEMO Plan Chapter 7). Like the FSA/EIS, the NEMO Plan failed to address impacts to California's population of Northeastern Mojave desert tortoises. The BLM must therefore fully address impacts to the Northeastern Mojave ESU and to California's interests in the EIS.

BLM Handbook 1745 - *Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants* - requires that "Decisions for making introductions, transplants, or reestablishments should be made as part of the land use planning process (see BLM Manual Section 1622). Releases must be in conformance with approved RMPs. A Land Use Plan Amendment must be prepared for proposed releases if management direction is not provided in the existing Land Use Plan (see BLM Manual Section 1617, emphasis added)." The proposed project and the other projects proposed for the project area will result in large-scale movement and translocation of desert tortoises. There is no consideration in the California Desert Conservation Area Plan as amended by the NEMO Plan for desert tortoise translocations on this scale. Therefore, a plan amendment is required to comply with BLM policy.

In addition, BLM Handbook 1745 at .1.12A requires that the activity plan be site-specific and include "Site-specific and measurable vegetation/habitat population objectives which are based on existing ecological site potential/condition, habitat capability, and other important factors. (See BLM Manual Sections 1619, 6780, and 4120)." As we discussed above, the DEIS

does not adequately describe existing ecological conditions nor does it address the capability of the habitat at the translocation sites to support additional tortoises.

The BLM must adhere to its own policy and prepare an EIS that proposes and analyses an amendment to the CDCA Plan that provides the required management direction with respect to desert tortoise translocation prior to considering this project. It could then use that guidance to develop a translocation plan for desert tortoises in the project area that includes the required site-specific analyses to comply with BLM policy, FLMPA, and NEPA.

(10) Mitigation.

The NEPA requires the BLM to include appropriate mitigation measures in its environmental analysis. The management guidelines for Category III desert tortoise habitat are to “Limit tortoise habitat and population declines to the extent possible by mitigating impacts” (Spang *et al.* 1988). The NEMO Plan does not cover projects greater than 100 acres (NEMO Plan at 2.27). The BLM must thus describe in its NEPA document the impacts of the proposed action, explain the specific measures that will mitigate these impacts, and analyze how these measures would reduce impacts to less than significant and thus avoid compromising the NEMO Plan’s conservation strategy.

In the FSA/DEIS, BLM proposes mitigating impacts at the power plant site by acquiring habitat and implementing recovery actions in the Eastern Mojave Desert Tortoise Recovery Unit (FSA/DEIS at 1-19). This is populated by a different desert tortoise ESU. This will not mitigate impacts to the affected Northeastern Mojave ESU. Because the DEIS has failed to address direct, indirect and cumulative impacts to the Northeastern Mojave desert tortoise population and the significance of this ESU to the conservation of the entire listed population, and because the DEIS fails to present specific mitigation measures it is impossible to determine the adequacy of the mitigation.

The primary mitigation mechanism for any large scale project that will permanently destroy and disturb large tracts of desert tortoise habitat must be acquisition of replacement habitat. The location of this replacement habitat is not identified in the FSA/DEIS. However, it is doubtful if sufficient replacement habitat exists within the Northeastern ESU in California to offset habitat loss on this scale. The DEIS does not address mitigating impacts to connectivity at all. The principle underlying acquisition of compensation habitat is that that replacement habitat can be enhanced with additional short-term measures to compensate for the habitat that is lost. Potential enhancement actions for impacts to the Northeastern Mojave desert tortoise population in California’s Ivanpah Valley include erecting tortoise barrier fencing along major roads. Fencing reduces tortoise loss, reduces road kill (and thus foraging opportunities for ravens), and effectively increases habitat available for use by tortoises. Other potential enhancement actions include removing livestock grazing and formally protecting habitat by changing its land use designation. The BLM should consider plan amendments to (a) allow buyout and retirement of grazing allotments, including the Clark Mountain Allotment; (b) reduce vehicle routes and OHV activity; and, (c) expand the Ivanpah DWMA. Including the North Ivanpah Valley within the

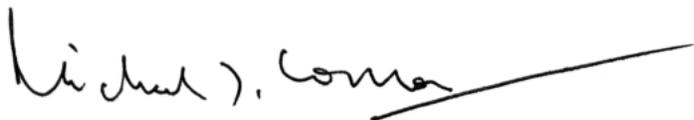
Ivanpah DWMA and thus protecting the remaining habitat there is the only foreseeable way that the cumulative effects of the project could be ameliorated.

Desert washes, drainage systems, and washlets are very important habitats for plants and animals in arid lands. Water concentrates in such places, creating greater cover and diversity of shrubs, bunch grasses, and annual grasses and forbs. The topography is often more varied, as are soil types and rock types and sizes, creating diverse sites for burrows, caves, and other shelters. The resulting “habitats” tend to attract more birds, mammals, reptiles, and invertebrates. Desert tortoises, for example, spend disproportionately much more time in wash habitat than they do in “flat” areas (Jennings 1997). Acquired compensation habitat must therefore include comparable acreages of wash habitat. If “nesting” of mitigation is allowed, the provisions must ensure that the loss of rare plant populations and individual plants will be adequately compensated.

In summary, the direct, indirect and cumulative impacts of this project on desert tortoise, rare plants, and visual resources are so great that adequate mitigation will be impossible to achieve unless the BLM considers making major changes to its management of the North Ivanpah Valley. If the BLM is not prepared to do so it must deny the right-of-way application.

Western Watersheds Project thanks you for this opportunity to provide comments on the DEIS. Please keep Western Watersheds Project informed of all further substantive stages in this NEPA process and document in the record our involvement as members of the ‘interested public’. If you have any questions, please feel to call me at (818) 345-0425 or e-mail me at <mjconnor@westernwatersheds.org>.

Sincerely,

A handwritten signature in black ink that reads "Michael J. Connor". The signature is written in a cursive style and is underlined with a single horizontal line.

Michael J. Connor, Ph.D.
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Electronic copies of these documents are available on the CD provided.

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EXHIBIT 523



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Working to protect and restore Western Watersheds

May 31, 2010

BY US MAIL AND BY EMAIL

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RE: Supplemental Draft Environmental Impact Statement for Ivanpah Solar Electric Generation System dated April 13, 2010 (DES-09-46).

Dear Mr. Meckfessel:

Western Watersheds Project is pleased to provide the following comments on the Supplemental Draft Environmental Impact Statement for the Ivanpah Solar Electric Generation System dated April 13, 2010 (DES-09-46) ("SDEIS"). The closing date for public comment is May 31, 2010 so these comments are timely filed. Please incorporate and address our comments in the planning for this proposed power plant project.

Western Watersheds Project works to protect and conserve the public lands, wildlife and natural resources of the American West through education, research, public policy initiatives and litigation. Western Watersheds Project has a particular interest in the California Desert Conservation Area and our staff and members use and enjoy the project area's public lands and fragile resources. Western Watersheds Project has been actively involved in the environmental review for this project, is an intervenor in the California Energy Commission licensing process for the project, and submitted comments on the draft FSA/DEIS. We have attached a copy and hereby incorporate by reference the entire contents of that February 11, 2010 letter.

The proposed power plant project would be located on relatively undisturbed public lands in California that are habitat for the state and federally listed desert tortoise, and that provide habitat for rare plant species and communities. In the initial Draft EIS, the BLM considered only two alternatives, the proposed action and no action. The Supplemental Draft EIS (SDEIS) analyzes two additional alternatives to the proposed action; a "Mitigated Ivanpah 3 Alternative"

and a “Modified I-15 Alternative”. These two additional alternatives are for projects with slightly reduced footprints (about 3,564 acres) compared to the original proposed action (4,064 acres). The Mitigated Ivanpah 3 Alternative would be located entirely within the same property boundaries as the proposed project. In the Modified I-15 Alternative the Ivanpah 3 unit would be moved from north end of the project to south of the project closer to Interstate-15.

In the DEIS and now in the SDEIS, the BLM has failed to consider and analyze alternatives that would allow the project to proceed but would avoid impacts to desert tortoise, rare plants and other scarce and sensitive resources. The two alternatives reviewed in the SDEIS will have similar significant direct, indirect and cumulative impacts on desert tortoises, rare plants, and visual resources as the proposed action. The BLM failed to consider any alternatives that would avoid these resources but would allow the project to proceed. The BLM has failed to take NEPA’s requisite hard look at the environmental effects of each alternative. Accordingly, the BLM should consider issuing a new supplemental NEWPA document prior to developing a final EIS.

(1) Alternatives.

The NEPA implementing regulations specify that NEPA documents must analyze a full range of alternatives. The consideration of alternatives “is the heart of the environmental impact statement.” 40 C.F.R. § 1502.14. NEPA requires agencies to “Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.” (40 C.F.R. § 1500.2)

In the original DEIS, the BLM considered only two alternatives, granting the right-of-way (the “proposed action”) and not granting the right-of-way (“no action”). In our comment letter on the DEIS we had requested that the BLM to consider locating the project on Ivanpah Dry Lake bed. This obvious and reasonable alternative site location was raised at public meetings, was proposed by the Sierra Club in its June 22, 2009 letter, and was referenced by CDFG in its October 27, 2009 letter. The NEPA requires agencies to “Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.” This alternative should have been considered in the SDEIS.

(2) Desert Tortoise.

The proposed power plant project will have severe direct, indirect and cumulative impacts on California’s population of Northeastern Mojave desert tortoise Evolutionarily Significant Unit (“ESU”). These impacts include destruction and loss of habitat, take of tortoises, habitat fragmentation, population fragmentation, loss of connectivity, and loss of viability. The two alternatives proposed in the SDEIS would have similar impacts on desert tortoise to those discussed for the proposed action in our February 11, 2010 letter.

The SDEIS, like the FSA/DEIS, fails to provide crucial baseline information such as the amount of habitat in the Northeastern Mojave Recovery Unit in California, and fails to adequately document impacts to this resource. Without an adequate description of the ESU, a

full analysis of the impacts of the proposed project is impossible, nor is a meaningful comparison of alternatives or the development of adequate mitigation measures possible.

As we described in our comments, the tortoises in the Ivanpah Valley differ from other desert tortoise populations in California, and the population's limited range, overall importance to genetic diversity, and behavioral adaptations underlie the need to conserve them. This is especially important given the threats posed by global climate change.

The footprint of the proposed action in the FSA/DEIS was 4,073 acres (about 6.4 square miles) of desert tortoise habitat. The footprint for both alternatives examined in the SDEIS is 3,564 acres (about 5.6 square miles) of desert tortoise habitat. The NEMO Plan identifies that there are 27,300 acres of BLM-managed public lands in the North Ivanpah Valley. Based on that data the proposed alternatives would consume 13% of the North Ivanpah Valley's public land. Since the North Ivanpah Valley accounts for 24% of their habitat, the footprint of the alternatives would consume 4-5% of the Northeastern Mojave ESU desert tortoise habitat in California.

Mitigating for direct impacts on this scale is difficult. However, other major projects are also being proposed in the North Ivanpah Valley not the least of which are an additional power plant and the DesertExpress railway. In the face of the massive cumulative habitat loss and fragmentation that will occur if these projects proceed, it is difficult to imagine how a viable tortoise population could persist in the North Ivanpah Valley. As such, the cumulative impacts threaten to eliminate nearly a quarter of the range of the Northeastern Mojave ESU in California. Neither of the two alternatives reviewed in the SDEIS will reduce these cumulative effects.

The NEPA documents are unclear as to how many tortoises will be directly affected by each of the proposed power plant alternatives. How many, if any, individual desert tortoises would benefit directly from the "Mitigated Ivanpah 3" proposal is unclear. This is because (a) actual desert tortoise numbers on the ISEGS site has not been determined; and, (b) the current location of the three desert tortoises encountered during the protocol surveys conducted two years ago is unknown. The area occupied by the 433 acres that would be avoided under the proposal is an irregular polygon with a width of approximately 1,000 feet. Any individual tortoises present in this area would still be subject to indirect effects from the project such as changes in social structure due to loss of the local population and reduction of home ranges or activity areas. The 2007 desert tortoise survey results indicate that burrow density is higher on Ivanpah 2 and Ivanpah 1 than on Ivanpah 3. Despite these facts, the SDEIS makes the extraordinary and unsubstantiated claim that for the Mitigated Ivanpah 3 Alternative which reduces the Ivanpah 3 plant by 433 acres "would have greater anticipated benefit than reduction in project footprint in other locations". SDEIS at 36.

Connectivity between desert tortoise populations is essential to maintain gene flow and genetic heterogeneity (Hagerty, 2008¹). The FSA/DEIS mentioned connectivity but provides no discussion or analysis. At least the FSA/DEISD mentioned connectivity; the SDEIS completely ignores the effects of the two "new" alternatives on connectivity altogether.

¹ Hagerty, B. 2008. Ecological Genetics of the Mojave Desert Tortoise. PhD Dissertation. University of Nevada, Reno. 244 pp.

According to the *Draft Revised Desert Tortoise Recovery Plan* (at 46), connectivity between the Northeastern Mojave and Eastern Mojave desert tortoise ESUs is provided by the Mountain Pass area in California. Disruption of this connectivity poses a threat to the genetic diversity of the Mojave population as a whole. Because all three alternatives for the proposed project will impact tortoises in the area identified as providing this essential connectivity, impacts to connectivity between the tortoises in the Northeastern Mojave Recovery Unit and the adjacent Eastern Mojave Recovery Unit must be considered and fully addressed. The Ivanpah Valley desert tortoise population is threatened with isolation from tortoises in the rest of the Northeastern Mojave Recovery Unit by existing and proposed developments in Nevada's Primm Valley. The BLM must also consider connectivity between the Ivanpah Valley desert tortoise population and the rest of the Northeastern Mojave ESU. We had requested this in our February 11, 2010 letter.

Fragmentation of occupied desert tortoise habitat results in smaller, isolated desert tortoise populations that become increasingly susceptible to negative effects with decreased viability. Fragmentation is particularly problematic when population densities are low. The SDEIS recognizes that the new alternatives will fragment desert tortoise habitat but does not quantify the degree of fragmentation nor does it provide an analysis of the viability of the fragmented desert tortoise populations. The habitat in the 433 acres that will be avoided under the Mitigated Ivanpah 3 alternative is at the north end of the ISEGS project site. An additional solar power plant is proposed immediately to the east of this area, and the proposed DesertExpress railway line would pass to the north. Any desert tortoises in the avoided 433 acres would be isolated within this pocket of habitat. Indirect effects of the proposed project such as increased use by vehicles and "improvement" of dirt roads will lead to further fragmentation. The Ivanpah Valley desert tortoise population is threatened with isolation from tortoises in the rest of the Northeastern Mojave Recovery Unit by existing and proposed solar developments in the Primm Valley in Nevada. The proposed project will contribute to the fragmentation effects of these proposed and existing developments. These cumulative fragmentation effects must be considered and addressed in the FEIS.

The SDEIS at 36 states, "Compared to the proposed project, the Mitigated Ivanpah 3 Alternative would have a reduced impact on desert tortoise by avoiding long-term impacts to 433 acres of habitat and providing an area for tortoise relocation within known tortoise habitat." However, the 433 acres is part of the site that would require the most grading and rock removal. The SDEIS does not analyze availability of friable soils for burrow construction by desert tortoises within this 433 acres. Availability of friable soils for burrow construction may restrict the carrying capacity of the site and thus its suitability as a translocation site for tortoises. The SDEIS also fails to consider the other projects proposed in the immediate vicinity of the 433 acres which would further reduce the suitability of this area for desert tortoise translocation. We refer to our February 11, 2010 letter for additional comments related to desert tortoise translocation and relocation.

BLM Handbook 1745 requires that activity plans for translocations must be site-specific and include "Site-specific and measurable vegetation/habitat population objectives which are based on existing ecological site potential/condition, habitat capability, and other important

factors.” Neither the DEIS nor the SDEIS adequately describe existing ecological conditions nor address the capacity of the habitat at the translocation sites to support additional tortoises.

In summary, the direct, indirect, and cumulatively impacts of the proposed project on the threatened desert tortoise will be severe. Since the Northeastern Mojave population is the most genetically distinct desert tortoise population in California, and the North Ivanpah Valley desert tortoises exhibit behavioral adaptations that may be important for the long-term survival of the species, protection of these tortoises may well be critical to the conservation of the entire listed population in California. We are extremely concerned that the impacts of the proposed project will endanger California’s Northeastern Mojave desert tortoise population, and will place the entire Mojave desert tortoise population at risk.

(3) Wild Horse and Burros

The SDIES is incorrect in asserting that “wild horses are not present in the project area”. There is at least one stallion present (photographs available on request) that was described by the grazing permittee as having been present for several seasons. Although the BLM has established the AML for burros in the Clark Mountain HMA at zero, there are many burros on the site that will be impacted. BLM cannot simply pronounce that because they have established a zero AML, wild horses and burros will not be impacted by any of the alternatives. BLM must address the actual impacts to the resident wild horse and burro population.

(4) Bighorn Sheep.

Like the FSA/DEIS, the SDEIS fails to fully analyze impacts to bighorn sheep, provide alternatives to avoid impacts, or provide measures to minimize these impacts. The slightly smaller size of the Mitigated Ivanpah 3 alternative does not make up for the failure to obtain and consider basic information about the use of the area by bighorn and the likely impacts to bighorn from the project.

(5) Other Sensitive Species.

The NEMO Plan set the goal for special status species as “Populations and their habitats are sufficiently distributed to prevent the need for listing” (NEMO Plan at 2-6). Like the FSA/DEIS, the SDEIS fails to fully analyze impacts to gila monsters, burrowing owl, golden eagles, other bird species, bats, and other wildlife or to provide alternatives to avoid impacts, or provide measures to minimize impacts. In doing so, it fails to take NEPA’s requisite hard look and fails to meet NEPA’s requirements or satisfy the NEMO Plan’s objectives.

(6) Rare Plants.

The NEMO Plan set the goal for special status species as “Populations and their habitats are sufficiently distributed to prevent the need for listing” (NEMO Plan at 2-6). The SDEIS provides too little analysis of impacts, fails to discuss of alternatives that would avoid these impacts, and provides inadequate information about the proposed mitigation strategies and how

these will fulfill the objectives laid out in NEMO. Siting the project on the dry lake bed would have avoided many impacts to rare plants.

(7) Visual Resources.

Visual resources are important public resources identified in both FLPMA and the CDCA Plan. The Clark Mountains, part of the Mojave National Preserve, rise to almost 8,000 feet from the Ivanpah Valley and view of the mountains from the valley will be marred by the ISEGS project's power towers, each rising to 459 feet above the valley and array of 428,000 mirrors. Scenic views from two wilderness areas (Mesquite and Stateline) will also be adversely affected. Hundreds of thousands of visitors pass through the Ivanpah Valley annually. While most of these simply pass through along the major highways, many visitors do stop to visit, use and enjoy the Ivanpah Valley's public lands, Mojave National Preserve, Wilderness Areas, and recreation areas. The two alternatives proposed in the SDEIS will significantly impact visual resources for these visitors. In the SDEIS and FSA/DEIS the BLM has failed to identify alternatives or mitigation measures that will avoid these impacts other than the "no action" alternative.

(8) Compliance with the Land Use Plan and BLM Policy.

The two alternatives analyzed in the SDEIS suffer the same lack of compliance issues with the CDCA Plan as amended by the 2002 NEMO Plan Amendment that we identified for the proposed action in our February 11 letter.

The NEMO Plan's mitigation for Category III habitat applies to projects of less than 100 acres. NEMO at 2.27. The two alternatives in the SDEIS are over forty times the maximum acreage for projects covered under the NEMO Plan. The NEMO Plan did not address California State interests in the Northeastern Mojave desert tortoise population. The NEMO Plan does not even list CDFG as one of the agencies consulted (See NEMO Plan Chapter 7). The NEMO Plan failed to address impacts to California's population of Northeastern Mojave desert tortoises. The BLM must therefore fully address impacts to the Northeastern Mojave ESU and to California's interests in the FEIS.

BLM Handbook 1745 - *Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants* - requires that "Decisions for making introductions, transplants, or reestablishments should be made as part of the land use planning process (see BLM Manual Section 1622). Releases must be in conformance with approved RMPs. A Land Use Plan Amendment must be prepared for proposed releases if management direction is not provided in the existing Land Use Plan (see BLM Manual Section 1617, emphasis added)." The two new proposed alternatives and the other projects proposed for the project area will result in large-scale movement and translocation of desert tortoises. There is no consideration in the California Desert Conservation Area Plan as amended by the NEMO Plan for desert tortoise translocations on this scale. Therefore, a plan amendment is required to comply with BLM policy.

The BLM must adhere to its own policy and prepare an FEIS that proposes and analyses an amendment to the CDCA Plan that provides the required management direction with respect

to desert tortoise translocation prior to considering this project. It could then use that guidance to develop a translocation plan for desert tortoises in the project area that includes the required site-specific analyses to comply with BLM policy, FLMPA, and NEPA.

In summary, the BLM has failed to analyze a reasonable range of alternatives in the SDEIS and DEIS, has failed to analyze alternatives that would avoid significant direct, indirect and cumulative effects on desert tortoise, special status species, rare plants, and visual resources, and that would comply with the governing CDCA Plan, and has failed to take a hard look at the environmental impacts of the alternatives. The BLM should address these deficiencies in a second supplemental DEIS.

Please keep Western Watersheds Project informed of all further substantive stages in this NEPA process and document in the record our involvement as members of the 'interested public'. If you have any questions, please feel to call me at (818) 345-0425 or e-mail me at <mjconnor@westernwatersheds.org>.

Sincerely,

A handwritten signature in black ink that reads "Michael J. Connor". The signature is written in a cursive style and is underlined with a single horizontal line.

Michael J. Connor, Ph.D.
California Director
Western Watersheds Project
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(818) 345-0425
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Attachment:

February 11, 2010 letter from Western Watersheds Project RE: Draft Ivanpah Solar Electric Generation System Environmental Impact Statement and the Draft California Desert Conservation Area Plan Amendment. 15 pp.



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Working to protect and restore Western Watersheds

February 11, 2010

BY US MAIL AND BY EMAIL

George Meckfessel
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Needles Field Office
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RE: Draft Ivanpah Solar Electric Generation System Environmental Impact Statement and the Draft California Desert Conservation Area Plan Amendment dated November 10, 2009.

Dear Mr. Meckfessel:

Western Watersheds Project is pleased to provide the following comments on the Draft Ivanpah Solar Electric Generation System Environmental Impact Statement and the Draft California Desert Conservation Area Plan Amendment ("FSA/DEIS"). The closing date for public comment is February 11, 2010 so this letter is timely.

Western Watersheds Project works to protect and conserve the public lands, wildlife and natural resources of the American West through education, research, public policy initiatives and litigation. WWP has a particular interest in the California Desert Conservation Area and our staff and members use and enjoy the project area's public lands and fragile resources.

The proposed power plant project would be located on relatively undisturbed public lands in California that are habitat for the state and federally listed desert tortoise, and that provide habitat for rare plant species and communities. The proposed project will have significant direct, indirect and cumulative impacts on desert tortoises, rare plants, and visual resources. The BLM fails to consider and analyze alternatives that would allow the project to proceed without impacting desert tortoises, rare plants, and visual resources. As we discuss below, BLM's documentation of the impacts of the proposed action is inadequate. The DEIS fails to identify, document and analyze specific mitigation measures. Based on our review of the BLM's DEIS, it seems unlikely that the general mitigation measures proposed would reduce the environmental impacts of the proposed action to less than significant.

(1) Alternatives.

The consideration of alternatives “is the heart of the environmental impact statement.” 40 C.F.R. § 1502.14. The NEPA implementing regulations specify that NEPA documents must analyze a full range of alternatives. Based on the information and analysis presented in the sections on the Affected Environment (40 C.F.R. § 1502.15) and the Environmental Consequences (40 C.F.R. § 1502.16), the NEPA document should present the environmental impacts of the proposed action and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. The regulations specify that agencies shall:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include the alternative of no action.
- (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

In this case, the BLM has considered only two alternatives, granting the right-of-way (the “proposed action”) and not granting the right-of-way (“no action”). This is an entirely inadequate range of alternatives and violates both the letter and spirit of NEPA. This is especially so given the specific requirement to “Include reasonable alternatives not within the jurisdiction of the lead agency” since the CEC considers multiple alternatives in the associated FSA.

Because of the scale of the project it is unlikely that minor changes in footprint would reduce the direct, indirect, and cumulative effects of the project to less than significant. Neither the BLM nor the CEC considered alternative sites that would avoid significant impacts to desert tortoise but that would allow the project to proceed. One such location within the immediate project vicinity that would avoid desert tortoise habitat is Ivanpah Dry Lake bed. This alternative site location was raised at public meetings, was proposed by the Sierra Club in its June 22, 2009 letter, was referenced by CDFG in its October 27, 2009 letter, and should have been considered in the FSA/DEIS. While construction of the power plant at this site may require some additional engineering to accommodate flooding, the lake bed is crossed by both a freeway (I-15) and a power line so such accommodation is clearly possible. There are proposals to locate solar power plants on and adjacent to dry lake beds in other areas of the CDCA. Locating the power plant on the lake bed by the state line would minimize impacts to visual resources since it would be closer to existing developments, would avoid desert tortoise habitat, and would avoid impacts to rare plants. Restoration of the dry lake bed would likely be much easier once the plant is decommissioned. The lake bed covers 35 square miles and provides ample space to

accommodate existing recreational uses and the proposed ISEGS project. The BLM should consider this alternative in a supplemental draft EIS.

(2) Desert Tortoise.

The proposed power plant project will have severe direct, indirect and cumulative impacts on California's Northeastern Mojave tortoise population. The impacts include destruction and loss of habitat, take of tortoises, habitat fragmentation, population fragmentation, loss of connectivity, and loss of viability.

Significance of the Northeastern Mojave Population

The 1994 *Desert Tortoise (Mojave Population) Recovery Plan* recognized six Recovery Units within the listed Mojave desert tortoise population (USFWS 1994). The recovery units are defined as geographic areas that harbor Evolutionarily Significant Units (ESU) or evolutionarily distinct populations of desert tortoise. An ESU is a population, or group of populations, that represents significant adaptive variation within the species (USFWS 1994). The six desert tortoise ESUs were identified on the basis of genetic, morphological, behavioral, and ecological data. Subsequent detailed genetic analysis has offered independent support for the original ESU designations (Murphy et al, 2007). Five of the six ESUs occur wholly or partly in California. The proposed ISEGS site lies within the Northeastern Mojave Recovery Unit. This recovery unit extends from the Ivanpah Valley in California through Nevada and into extreme southwestern Utah and northwestern Arizona (USFWS 1994 Figure 9). The tortoises in the Recovery Unit shows some degree of genetic heterogeneity (Lamb *et al.*, 1989; Britten et al, 1997; USFWS 1994, USFWS 2008) consistent with natural barriers. The Recovery Unit is also heavily fragmented by human development and includes the greater Las Vegas conurbation.

The FSA/DEIS fails to provide crucial baseline information such as the amount of habitat in the Northeastern Mojave Recovery Unit in California, and fails to adequately document impacts to this resource. Without an adequate description of the ESU, a full analysis of the impacts of the proposed project is impossible, nor is a meaningful comparison of alternatives or the development of adequate mitigation measures possible.

In California, the Northeastern Mojave desert tortoises are restricted to the Ivanpah Valley with the boundaries marked by the Clark, Ivanpah, and New York Mountains. The California Natural Diversity Database (CNDDDB) estimates the size of the desert tortoise habitat within the Recovery Unit in California at 184,519.6 acres (CNDDDB 2009). The CNDDDB polygon excludes most of the Ivanpah Dry Lake bed but includes Interstate 15, Nipton Road, Ivanpah Road, Nipton, Ivanpah, the railroad, the Primm golf course, some mountainous terrain and other unsuitable habitat (see CNDDDB 2009b for a map showing the polygon). It thus considerably overestimates the amount of Northeastern Mojave desert tortoise habitat in California. Based on the CNDDDB polygon the North Ivanpah Valley accounts for about 24% or almost a quarter of all desert tortoise habitat in the Northeastern Mojave Recovery Unit in California.

In 1988, the BLM began categorizing desert tortoise habitat under its range wide plan for desert tortoise habitat management (Spang *et al.*, 1988). The North Ivanpah area was categorized as category I habitat and was managed as such until the signing of the ROD for the NEMO Plan Amendment in December 2002. The *Desert Tortoise (Mojave Population) Recovery Plan* included the North Ivanpah Valley within the proposed Ivanpah DWMA (USFWS 1994 at 41). The 1994 Recovery Plan included the North Ivanpah Valley in its proposed Ivanpah DWMA (see USFWS 1994 Figure 9). The NEMO Plan's Desert Tortoise Biological Team recommended consideration of the North Ivanpah Unit by the BLM for desert tortoise conservation in the NEMO Planning Area (NEMO Plan at A3). The 2002 EIS for the NEMO Plan recognized the value of the North Ivanpah Valley for desert tortoise and considered an alternative that included designating the North Ivanpah Unit as an Area of Critical Environmental Concern (ACEC) and part of the Ivanpah DWMA. However, the NEMO Plan's preferred and adopted alternative focused desert tortoise recovery on the Eastern Mojave Recovery Unit to the detriment of the Northeastern Mojave Recovery Unit in California and the North Ivanpah Valley was not included in the Ivanpah DWMA. Under the NEMO Plan, all desert tortoise habitat outside DWMA's was reclassified as Category III. The designation Category III does not mean that the habitat is degraded, contains low tortoise densities, or is unimportant it simply means it is not currently within a designated DWMA. The BLM manages all categorized desert tortoise habitat to protect desert tortoise with the management goal for Category III habitat being to limit tortoise habitat and population declines. The change in designation had no effect on the habitat *per se*. It remains good quality desert tortoise habitat. The basis for this change in designation was the BLM's focus on the Eastern Mojave ESU – "The preferred alternative is to propose that USFWS modify recovery unit boundaries so that all of NEMO is part of the Eastern Mojave Recovery Unit. Currently a portion of the planning area is in the Northern and Eastern Mojave Recovery Unit, but it forms a cohesive unit with the rest of the Eastern Mojave Desert tortoise habitat. Strategies for the Northern and Eastern Mojave Recovery Unit are focused firstly in areas northeast of Las Vegas, and secondarily, in an area north of Nipton Road in an area of Nevada that is not adjacent to the state line." NEMO Plan at 1-3.

Tortoises in the Ivanpah Valley differ from other desert tortoise populations in California (Lamb, 1986; Lamb *et al.*, 1989; Murphy *et al.*, 2007). Northeastern Mojave desert tortoises exhibit the greatest genetic differentiation of the five recognized units occurring in California (Murphy *et al.*, 2007). According to the DEIS, the desert tortoise population in the North Ivanpah Valley is also unique because it is the highest elevation at which this species is known to reside in the state (PSA/DEIS at 6.2-29).

The limited range, overall importance to genetic diversity, and behavioral adaptations underlie the need to conserve this desert tortoise population in California. This is especially important given the threats posed by global climate change. As the USFWS 2008 Draft Revised Recovery Plan notes, "Climatic regimes are believed to influence the distribution of plants and animals through species-specific physiological thresholds of temperature and precipitation tolerance. Warming temperatures and altered precipitation patterns may result in distributions shifting northward and/or to higher elevations, depending on resource availability (Walther *et al.* 2002). We may expect this response in the desert tortoise to reduce the viability of lands currently identified as "refuges" or critical habitat for the species." (USFWS 2008 at 133)

The 2002 EIS for the NEMO Plan recognized the value of the North Ivanpah Valley for desert tortoise. It considered an alternative (Alternative 2 “Desert Tortoise Recovery”) that included designating the North Ivanpah Unit as an Area of Critical Environmental Concern (ACEC) and part of the Ivanpah DWMA. However, the NEMO Plan’s preferred and adopted alternative focused on the Eastern Mojave Recovery Unit. Thus the FSA/DEIS cannot simply defer to the NEMO Plan’s analysis since that plan did not address conservation of the Northeastern Mojave desert tortoise ESU nor did it address California State interests in these tortoises.

The 1984 status report tortoise density map of the Ivanpah Valley indicates that tortoise densities in the North Ivanpah Valley ranged from 20-100/sq mile with about half of the habitat (including the area of the power plant footprint) in the range of 50-100/sq mile (Berry et al., 1984 Plate 6-13). The most recent range wide monitoring survey report shows that tortoise densities within the Northeastern Mojave Recovery Unit are the lowest of the six recognized Recovery Units, with an estimated density of 1.7 tortoises/square km or 4.4 tortoises/square mile based on surveys conducted in 2007 (USFWS 2009). However, that estimate does not include the Ivanpah Valley which historically had some of the highest tortoise densities in the Northeastern Mojave Recovery Unit. The USFWS currently includes the Ivanpah Valley within its Ivanpah monitoring stratum; the majority of the stratum is located west of the Ivanpah Mountains in the Eastern Mojave Recovery Unit (see Figure 7 in USFWS 2009). For the 2007 survey, only one of the sixteen transects was within the Ivanpah Valley. Both factors make using the Ivanpah monitoring stratum data problematic for estimating tortoise densities in the Ivanpah Valley. There is a permanent study plot located in the southern end of the valley in an area that was identified as having a high tortoise density in the 1984 status report (Berry et al., 1984 Plate 6-13). The study plot population declined between 1986 and 2002. More recent density estimates are not yet available.

Impacts

Habitat Loss

The footprint of the proposed power plant will consume some 4,073 acres (about 6.4 square miles) of desert tortoise habitat. Based on the CNDDDB data referenced above, this amounts to 2.2% of the Northeastern Mojave Recovery Unit in California. Since the CNDDDB acreage is an overestimate, the actual percentage loss is higher and may be considerably higher. The NEMO Plan identifies the North Ivanpah Valley as consisting of approximately 29,110 acres, of which about 27,300 acres are BLM-managed public lands (NEMO Plan at A-3). Based on that data the power plant would consume 14% of the North Ivanpah Valley Unit and 15% of the public land. Since the North Ivanpah Valley accounts for 24% of the habitat identified in the CNDDDB, the footprint may consume 4-5% of the actual Northeastern Mojave ESU desert tortoise habitat in California.

Mitigating for direct impacts on this scale is difficult. However, other major projects are also being proposed in the North Ivanpah Valley not the least of which are an additional power plant and the DesertExpress railway. In the face of the massive cumulative habitat loss and fragmentation that will occur if these projects proceed, it is difficult to imagine how a viable

tortoise population could persist in the North Ivanpah Valley. As such, the cumulative impacts threaten to eliminate nearly a quarter of the range of the Northeastern Mojave ESU in California.

Take of Tortoises

The FSA/DEIS is unclear as to how many tortoises will be directly affected by the proposed power plant and cites only the numbers of animals seen in various surveys. Table 5 of the August 2009 survey report (Supplemental Data Response, Set 2I at 9) provides estimates of the adult tortoise densities on the Ivanpah 1, Ivanpah 2 and Ivanpah 3 sites for comparison with the later surveys performed in proposed translocation areas. As was revealed at the recent CEC Hearing that table is incorrect. Based on the corrected data, the estimated abundances are 2.9 tortoises/sq km on Ivanpah 1, 1.7 tortoises/sq km on Ivanpah 2, and 2.6 tortoises/sq km on Ivanpah 3. These values are comparable to or higher than the 1.7 tortoises/square km estimated from surveys of conservation areas within the Recovery Unit conducted during the range-wide line-distance sampling effort (USFWS 2009). The estimated densities are about the twice the number of adult tortoises encountered during surveys. Thus the estimated number of tortoises on the project site is approximately 50 adults with an unknown number of young. This does not include the unknown number of resident tortoises at the proposed translocation site that may be affected by the translocation nor tortoises that may be impacted by the increased use of roads in the area.

Connectivity

Connectivity between desert tortoise populations is essential to maintain gene flow and genetic heterogeneity. The FSA/DEIS mentions connectivity but provides no discussion or analysis. The FSA/DEIS at 6.2-57 states that connectivity “will be discussed in more detail below”. Connectivity is then included in the list at FSA/DEIS 6.2-72 but no further detail, discussion or analysis is provided.

According to the *Draft Revised Desert Tortoise Recovery Plan* (at 46), connectivity between the Northeastern Mojave and Eastern Mojave desert tortoise ESUs is provided by the Mountain Pass area in California. Disruption of this connectivity poses a threat to the genetic diversity of the Mojave population as a whole. Because the proposed project will impact tortoises in the area identified as providing connectivity, impacts to connectivity between the tortoises in the Northeastern Mojave Recovery Unit and the adjacent Eastern Mojave Recovery Unit must be considered and fully addressed.

The Ivanpah Valley desert tortoise population is threatened with isolation from tortoises in the rest of the Northeastern Mojave Recovery Unit by existing and proposed developments in Nevada’s Primm Valley. The BLM must also consider connectivity between the Ivanpah Valley desert tortoise population and the rest of the Northeastern Mojave ESU.

Fragmentation

Fragmentation of occupied desert tortoise habitat results in smaller, isolated desert tortoise populations that become increasingly susceptible to negative effects. Fragmentation is particularly problematic when population densities are low. Fragmentation decreases viability and results in isolated “pockets” of desert tortoises that are at greater risk of extirpation from stochastic events. The FSA/DEIS mentions fragmentation of habitat but does not quantify the

degree of fragmentation nor does it provide an analysis of the viability of the fragmented desert tortoise populations. The proposed ISEGS site bisects the North Ivanpah Valley and will directly fragment the existing breeding population. Indirect effects of the proposed project such as increased use by vehicles and “improvement” of dirt roads will lead to further fragmentation.

The Ivanpah Valley desert tortoise population is threatened with isolation from tortoises in the rest of the Northeastern Mojave Recovery Unit by existing and proposed developments in the Primm Valley in Nevada. The proposed project will contribute to the fragmentation effects of these proposed and existing developments. These cumulative fragmentation effects must be considered and addressed.

Translocation

The proposed project and the other projects proposed for the project area will require the large-scale movement and translocation of desert tortoises within the North Ivanpah Unit. Translocation of desert tortoises is highly controversial as witnessed with the BLM’s withdrawal of its “*Environmental Assessment for the Translocation of Desert Tortoises onto Bureau of Land Management and Other Federal Lands in the Superior-Cronese Desert Wildlife Management Area, San Bernardino County, California Bureau of Land Management Environmental Assessment*” (CA-680-2009-0058) immediately following the close of the public comment period. There is no consideration in the CDCA Plan for large-scale desert tortoise translocation. Therefore, the BLM must include a detailed translocation plan for the project in its NEPA documentation.

No final translocation plan has been made available for to the public to review. The BLM must make this available for public comment prior to issuing its decision. The project applicants have identified four sites west of the proposed project as possible translocation sites. However, the northernmost of these is within the footprint of the proposed railway line and would not appear to be suitable for that reason alone. The tortoise densities on these proposed translocation sites are unknown since adequate surveys have not been performed. However, if the tortoise densities are comparable to those on the project site then translocation is likely to double the densities on the translocation sites. If the tortoise densities on the proposed translocation sites are lower than the project area, the ecological conditions underlying this need to be examined and explained.

The surveys on the translocation sites referenced in the DEIS were performed outside the protocol season (PSA/DEIS at 6.2-50). The USFWS protocol survey relies on using standard values for estimating the proportion of desert tortoises above ground and available for detection (Pa). These Pa values are based on average proportions of transmittered tortoises found above ground from earlier range-wide line-distance sampling surveys conducted during the spring survey season. Tortoise activity is highly seasonal. The proportion of tortoises above ground changes with time and may decrease dramatically in July. Because of this, use of the standard Pa values for surveys conducted outside the season will underestimate abundance. A reasonable estimate of the abundance of tortoises in the relocation areas is essential to evaluate potential impacts to resident tortoises from the proposed relocation. The density of tortoises on the project site and the density of resident tortoises in the proposed relocation and translocation areas should

be determined using appropriate survey techniques so that the extent of the impacts can be determined.

The habitat surveys conducted in the relocation areas do not include surveys of the annual plants that tortoises depend upon for their survival (USFWS 1994). The nutritional status of wild tortoises may depend more on availability of plant species of high nutritional quality than on overall amounts of annual vegetation (Ofstedahl and Allen, 1996). Without data on the quantity and quality of available forage it is unclear if the current carrying capacity of the proposed relocation sites is sufficient to support additional tortoises. This is important since the 1984 status report tortoise density map of the Ivanpah Valley (Berry et al., 1984 Plate 6-13) indicates that historic tortoise densities in the North Ivanpah Valley were not uniform and may have been lower at the translocation sites compared to the project site.

BLM Handbook 1745 requires that activity plans for translocations must be site-specific and include "Site-specific and measurable vegetation/habitat population objectives which are based on existing ecological site potential/condition, habitat capability, and other important factors." The DEIS does not adequately describe existing ecological conditions nor does it address the capacity of the habitat at the translocation sites to support additional tortoises. It has been established that livestock compete with desert tortoises for important food plants (Avery and Neibergs, 1997; Avery, 1998). The BLM must analyze impacts from competition for food plants by cattle on the likely success of translocating tortoises to these sites and provide mitigation for any impacts identified.

Environmental stressors may contribute to disease outbreaks in desert tortoise populations particularly Upper Respiratory Tract Disease (Sandmeier *et al.*, 2009). The BLM should require that the health status of resident and translocated tortoises be evaluated so that movement of *Mycoplasma* infected tortoises can be controlled.

Desert tortoises may make long-distance movements following relocation (FSA/DEIS at 6.2-50). Because of this, it is critical that fencing along I-15 be in place prior to any tortoise translocations being undertaken because translocated or relocated tortoises may make long distance movements. This must be specified in the translocation plan component of the EIS.

Summary

In summary, the direct, indirect, and cumulatively impacts of the proposed project on the threatened desert tortoise will be severe. Since the Northeastern Mojave population is the most genetically distinct desert tortoise population in California, and the North Ivanpah Valley desert tortoises exhibit behavioral adaptations that may be important for the long-term survival of the species, protection of these tortoises may well be critical to the conservation of the entire listed population in California. We are extremely concerned that the impacts of the proposed project will endanger California's Northeastern Mojave desert tortoise population, and will place the entire Mojave desert tortoise population at risk.

(3) Bighorn Sheep.

The FSA/DEIS fails to fully analyze impacts to bighorn sheep, provide alternatives to avoid impacts, or provide measures to minimize these impacts. The suggested mitigation measure of adding an artificial water source in the Clark Mountain area will not mitigate for the loss of bajada foraging habitat. The FSA/DEIS also fails to identify and analyze the impacts associated with the construction and maintenance of this artificial water source such as facilitating raven presence in the North Ivanpah Valley. The BLM should consider removal of cattle from the Clark Mountain Allotment and locating the project elsewhere as mitigation and avoidance measures.

(4) Other Sensitive Species.

The NEMO Plan set the goal for special status species as “Populations and their habitats are sufficiently distributed to prevent the need for listing” (NEMO Plan at 2-6). The FSA/DEIS fails to fully analyze impacts to gila monsters, burrowing owl, other bird species, bats, and other wildlife or to provide alternatives to avoid impacts, or provide measures to minimize impacts. In doing so, it fails to meet NEPA’s requirements or satisfy the NEMO Plan’s objectives.

(5) Rare Plants.

The NEMO Plan set the goal for special status species as “Populations and their habitats are sufficiently distributed to prevent the need for listing” (NEMO Plan at 2-6). For rare plants and special status plant communities the FSA/DEIS provides too little analysis of impacts, inadequate discussion of alternatives that could avoid impacts, and inadequate information about the proposed mitigation strategy and how it will fulfill the objectives laid out in NEMO. The lack of fall surveys likely under-represents the full suite of rare plant taxa occurring on site. The FSA/DEIS concludes that the ISEGS project will result in "impacts to Mojave milkweed and Rusby’s desert-mallow" that "would remain significant in a CEQA context even after implementation of the special-status plant impact avoidance and minimization measures described in Energy Commission staff’s proposed conditions of certification." (FSA/DEIS p. 1-18) The best way to avoid significant impacts to rare plants occurring at this site is to relocate the project to another, lower resource value site but this was not considered by the BLM in the FSA/DEIS.

(6) Invasive Species.

The FSA/DEIS fails to fully analyze the project’s direct, indirect, and cumulative effects on the spread of invasive weeds and the potential increase in wildfire risks. Water run-off from the washing the mirrors will promote invasive plant growth year-round and increased use of the area will help disperse invasive plant seeds throughout the area. The DEIS does not explain how invasive species will be controlled on the project site.

(7) Visual Resources.

Visual resources are important public resources identified in both FLPMA and the CDCA Plan. The Clark Mountains, part of the Mojave National Preserve, rise to almost 8,000 feet from the Ivanpah Valley and view of the mountains from the valley will be marred by the ISEGS project's power towers, each rising to 459 feet above the valley and array of 428,000 mirrors. Scenic views from two wilderness areas (Mesquite and Stateline) will also be adversely affected. Hundreds of thousands of visitors pass through the Ivanpah Valley annually. While most of these simply pass through along the major highways, many visitors do stop to visit, use and enjoy the Ivanpah Valley's public lands, Mojave National Preserve, Wilderness Areas, and recreation areas. The proposed project will significantly impact visual resources for these visitors. In the FSA/DEIS the BLM has failed to identify alternatives or mitigation measures that will avoid these impacts other than the "no action" alternative.

(8) Cumulative Impacts.

The proposed project in conjunction with other projects in the area will have significant cumulative effects on the areas resources especially to desert tortoise, rare plants, and visual resources.

The FSA/DEIS fails to adequately consider that the population of the Northeastern Mojave ESU desert tortoises the Ivanpah Valley is unique in California and is at high risk of extirpation from the state from the cumulative effects of this project, the Optisolar (now First Solar) power project adjacent to ISEGS, the proposed DesertXpress High Speed Passenger Train, and the upgrade of the Eldorado-Ivanpah transmission line in California alone. The cumulative effect of these projects will be to convert the Northern Ivanpah Valley Unit into a *de facto* solar zone and industrial zone which no longer supports multiple use nor provides habitat for desert tortoise and other wildlife.

In addition to ISEGS and Optisolar (First Solar) on the northeastern slopes of the Clark Mountains, two solar energy generation facilities are proposed by NextLight Renewable Power on 7,840 acres of public lands on the Nevada (Primm Valley) portion of the Ivanpah Valley. These lands are also high quality desert tortoise habitat with intact and robust populations of desert tortoise. The FSA/DEIS fails to adequately assess the cumulative impacts from these projects and other solar projects on the Nevada side of the border to Northeastern Mojave ESU desert tortoises. The impacts include destruction and loss of habitat, take of tortoises, habitat fragmentation, population fragmentation, loss of connectivity, and loss of viability. The cumulative impacts of these developments severely threatens the long-term survival of the Northeastern ESU desert tortoises in the entire Ivanpah basin and threatens to sever connectivity between this and other Recovery Units thus compromising recovery. Since the Northeastern Mojave population is the most genetically distinct desert tortoise population in California, protection of these tortoises may well be critical to the survival of the four other Recovery Units found in California. The cumulative impacts threaten to endanger California's Northeastern Mojave desert tortoise population, and this places the entire desert tortoise population in California at risk.

The FSA/DEIS fails to adequately identify and analyze the cumulative impacts and the growth inducing impacts of the project which in this instance are closely tied together. While review of the Optisolar application has yet to begin, the high cost of the Eldorado-Ivanpah transmission upgrade provides a compelling economic incentive for approval of the Optisolar project, virtually ensuring yet another solar power project on prime desert tortoise habitat in the northern Ivanpah Valley. Arguably, neither project alone could amortize the cost of the proposed Eldorado-Ivanpah upgrade, which involves the construction of 35 miles of high voltage lines from California into Nevada and separate telecommunications pathways. The cumulative impacts from these two projects on the northern Ivanpah Valley are not adequately assessed and the growth inducing impacts from the approval of one project on the entire area is not adequately assessed or analyzed.

Cumulative impacts to special status plants are recognized (Executive Summary, FSA/DEIS, p. 1-15) but the FSA/DEIS has failed to adequately analyze these cumulative impacts across the range of these species and ways to avoid and minimize these impacts.

(9) Compliance with the Land Use Plan and BLM Policy.

The governing land use plan for the project area is the CDCA Plan as amended by the 2002 NEMO Plan Amendment.

The NEMO Plan's mitigation for Category III habitat applies to projects of less than 100 acres. NEMO at 2.27. The proposed project is over forty times the maximum acreage for projects covered under the NEMO Plan. The NEMO Plan did not address California State interests in the Northeastern Mojave desert tortoise population. The NEMO Plan does not even list CDFG as one of the agencies consulted (See NEMO Plan Chapter 7). Like the FSA/EIS, the NEMO Plan failed to address impacts to California's population of Northeastern Mojave desert tortoises. The BLM must therefore fully address impacts to the Northeastern Mojave ESU and to California's interests in the EIS.

BLM Handbook 1745 - *Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants* - requires that "Decisions for making introductions, transplants, or reestablishments should be made as part of the land use planning process (see BLM Manual Section 1622). Releases must be in conformance with approved RMPs. A Land Use Plan Amendment must be prepared for proposed releases if management direction is not provided in the existing Land Use Plan (see BLM Manual Section 1617, emphasis added)." The proposed project and the other projects proposed for the project area will result in large-scale movement and translocation of desert tortoises. There is no consideration in the California Desert Conservation Area Plan as amended by the NEMO Plan for desert tortoise translocations on this scale. Therefore, a plan amendment is required to comply with BLM policy.

In addition, BLM Handbook 1745 at .1.12A requires that the activity plan be site-specific and include "Site-specific and measurable vegetation/habitat population objectives which are based on existing ecological site potential/condition, habitat capability, and other important factors. (See BLM Manual Sections 1619, 6780, and 4120)." As we discussed above, the DEIS

does not adequately describe existing ecological conditions nor does it address the capability of the habitat at the translocation sites to support additional tortoises.

The BLM must adhere to its own policy and prepare an EIS that proposes and analyses an amendment to the CDCA Plan that provides the required management direction with respect to desert tortoise translocation prior to considering this project. It could then use that guidance to develop a translocation plan for desert tortoises in the project area that includes the required site-specific analyses to comply with BLM policy, FLMPA, and NEPA.

(10) Mitigation.

The NEPA requires the BLM to include appropriate mitigation measures in its environmental analysis. The management guidelines for Category III desert tortoise habitat are to “Limit tortoise habitat and population declines to the extent possible by mitigating impacts” (Spang *et al.* 1988). The NEMO Plan does not cover projects greater than 100 acres (NEMO Plan at 2.27). The BLM must thus describe in its NEPA document the impacts of the proposed action, explain the specific measures that will mitigate these impacts, and analyze how these measures would reduce impacts to less than significant and thus avoid compromising the NEMO Plan’s conservation strategy.

In the FSA/DEIS, BLM proposes mitigating impacts at the power plant site by acquiring habitat and implementing recovery actions in the Eastern Mojave Desert Tortoise Recovery Unit (FSA/DEIS at 1-19). This is populated by a different desert tortoise ESU. This will not mitigate impacts to the affected Northeastern Mojave ESU. Because the DEIS has failed to address direct, indirect and cumulative impacts to the Northeastern Mojave desert tortoise population and the significance of this ESU to the conservation of the entire listed population, and because the DEIS fails to present specific mitigation measures it is impossible to determine the adequacy of the mitigation.

The primary mitigation mechanism for any large scale project that will permanently destroy and disturb large tracts of desert tortoise habitat must be acquisition of replacement habitat. The location of this replacement habitat is not identified in the FSA/DEIS. However, it is doubtful if sufficient replacement habitat exists within the Northeastern ESU in California to offset habitat loss on this scale. The DEIS does not address mitigating impacts to connectivity at all. The principle underlying acquisition of compensation habitat is that that replacement habitat can be enhanced with additional short-term measures to compensate for the habitat that is lost. Potential enhancement actions for impacts to the Northeastern Mojave desert tortoise population in California’s Ivanpah Valley include erecting tortoise barrier fencing along major roads. Fencing reduces tortoise loss, reduces road kill (and thus foraging opportunities for ravens), and effectively increases habitat available for use by tortoises. Other potential enhancement actions include removing livestock grazing and formally protecting habitat by changing its land use designation. The BLM should consider plan amendments to (a) allow buyout and retirement of grazing allotments, including the Clark Mountain Allotment; (b) reduce vehicle routes and OHV activity; and, (c) expand the Ivanpah DWMA. Including the North Ivanpah Valley within the

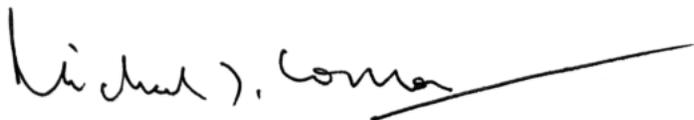
Ivanpah DWMA and thus protecting the remaining habitat there is the only foreseeable way that the cumulative effects of the project could be ameliorated.

Desert washes, drainage systems, and washlets are very important habitats for plants and animals in arid lands. Water concentrates in such places, creating greater cover and diversity of shrubs, bunch grasses, and annual grasses and forbs. The topography is often more varied, as are soil types and rock types and sizes, creating diverse sites for burrows, caves, and other shelters. The resulting “habitats” tend to attract more birds, mammals, reptiles, and invertebrates. Desert tortoises, for example, spend disproportionately much more time in wash habitat than they do in “flat” areas (Jennings 1997). Acquired compensation habitat must therefore include comparable acreages of wash habitat. If “nesting” of mitigation is allowed, the provisions must ensure that the loss of rare plant populations and individual plants will be adequately compensated.

In summary, the direct, indirect and cumulative impacts of this project on desert tortoise, rare plants, and visual resources are so great that adequate mitigation will be impossible to achieve unless the BLM considers making major changes to its management of the North Ivanpah Valley. If the BLM is not prepared to do so it must deny the right-of-way application.

Western Watersheds Project thanks you for this opportunity to provide comments on the DEIS. Please keep Western Watersheds Project informed of all further substantive stages in this NEPA process and document in the record our involvement as members of the ‘interested public’. If you have any questions, please feel to call me at (818) 345-0425 or e-mail me at <mjconnor@westernwatersheds.org>.

Sincerely,

A handwritten signature in black ink that reads "Michael J. Connor". The signature is written in a cursive style and is underlined with a single horizontal line.

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Electronic copies of these documents are available on the CD provided.

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California Energy Resources Conservation
and Development Commission

In the Matter of:

APPLICATION FOR CERTIFICATION
FOR THE IVANPAH SOLAR
ELECTRIC
GENERATING SYSTEM

DOCKET NO. 07-AFC-5

DECLARATION OF SERVICE

I, Michael J. Connor, declare that on August 20, 2010, I served and filed copies of the attached Additional Testimony dated August 20, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [www.energy.ca.gov/sitincases/ivanpah].

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

FOR SERVICE TO ALL OTHER PARTIES:

sent electronically to all email addresses on the Proof of Service list;
 by personal delivery or by depositing in the United States mail at with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

OR

depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No.
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Sacramento, CA 95814-5512
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I declare under penalty of perjury that the foregoing is true and correct.





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APPLICATION FOR CERTIFICATION
FOR THE *IVANPAH SOLAR ELECTRIC
GENERATING SYSTEM*

DOCKET No. 07-AFC-5
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(Revised 3/11/10)

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