PO BOX 95545 SEATTLE, WA 98145 (206)325-3503
WESTERNLANDS.ORG

August 24, 2012

BLM Director (210)
Attention: Brenda Williams
P.O. Box 71383
Washington, DC 20024-1383

Protest of Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States and Associated Proposed BLM Resource Management Plan Amendments

Western Lands Project, Basin and Range Watch, and Solar Done Right protest the Final Programmatic Environmental Impact Statement ("FPEIS") for Solar Energy Development in Six Southwestern States and the associated Proposed Resource Management Plan Amendments. The FPEIS is deficient because it neglected to consider reasonable alternatives and failed to analyze numerous impacts of solar energy plant development within several Solar Energy Zones. The BLM Director should refrain from reaching a decision regarding solar energy development and the proposed amendments until the deficiencies in the FPEIS are corrected with a second supplemental PEIS.

The Western Lands Project is a 501(c)(3) non-profit, public-interest organization with approximately 700 members across the United States that monitors federal land transactions and public land policy across the West and beyond. Western Lands tracks land exchanges, sales, and conveyances of public land implemented by the land management agencies or proposed by members of Congress. Its mission is to keep public land public. Its involvement in the PEIS and related policy stems from its belief that, due to the utter transformation and likely permanent conversion of sites developed for industrial-scale solar generation, these projects result in the virtual privatization of public lands.

Basin and Range Watch is a group of volunteers who live in the deserts of Nevada and California, working to stop the destruction of their desert homeland. Industrial renewable energy companies are seeking to develop millions of acres of unspoiled habitat in the region. Basin and Range Watch's goal is to identify the problems of energy sprawl and find solutions that will preserve our natural ecosystems and open spaces.

Solar Done Right, with pending status as an unincorporated association in the State of California, is a coalition of public land activists, solar power and electrical engineering experts, biologists and renewable energy advocates who oppose the development of centralized solar power stations on large swaths of ecologically valuable desert lands. Solar Done Right works to promote, and educate the public about, the better alternative of distributed generation in the built environment and on already developed, degraded, or contaminated lands.

Western Lands Project, Basin and Range Watch, and Solar Done Right are jointly filing this protest to protect their members' interests in the public lands in the six Southwestern states that would be subject to possible solar energy development if the BLM Director were to adopt the proposed Resource Management Plan Amendments. The organizations' members frequently visit the public lands in the six Southwestern states, including public lands that would be available for solar energy development if the proposed RMP Amendments were adopted. Among other activities, members hike, camp, take photographs, and view and study plants and wildlife. They intend to pursue these activities on those same public lands in the future. Their interest in and enjoyment of these activities would be harmed if solar energy plants and transmission facilities were developed on or near the public lands they enjoy.

Copies of the comment letters on the Draft Solar Programmatic Environmental Impact Statement and the Supplemental Draft Solar Programmatic Environmental Impact Statement submitted by Solar Done Right, and constituting the comments of Western Lands Project, Basin and Range Watch, and other groups, are submitted with this protest letter. In addition, the United States Environmental Protection Agency (EPA) submitted a comment letter on the Draft Solar PEIS on May 2, 2011 (available at http://www.epa.gov /region9/nepa/letters/solar-energy-six-states-DPEIS.pdf) and a comment letter on the Supplemental Draft Solar PEIS on January 27, 2012 (available at http://www.epa.gov/region9 /nepa/letters/solar-energy-dev-six-states-psdeis.pdf). EPA's letters also discuss the issues that will be addressed in this protest.

PEIS and Related Policy Take the Wrong Approach

The need to make a rapid transition to a renewable-based energy economy is urgent. Global warming threatens to unwind the relatively stable climate regime that has supported the evolution of present human and ecological systems. It is imperative that we target the most efficient, rapid and cost-effective path to a renewable energy future that creates quality employment, revitalizes local economies, protects the environment and renews our communities.

The beauty of renewable energy is its ubiquity. Solar in particular is available globally at the point of use. Advances in renewable energy, including smart grid technologies, are revolutionizing our energy systems. Many experts agree that decentralized generation and distribution is the wave of the future. If we are to realize our full renewable energy potential, we must make a major departure from the old energy business model dependent on a constantly expanding, centralized utility system.

In the U.S., utility monopolies have dominated our energy sector for more than half a century. Resistance to change permeates the highest echelons of government. The adoption of

Renewable Portfolio Standards (RPS) in many states, including the six states analyzed for solar resources in the PEIS, reflects this old energy paradigm.

But by mandating a market "add-on," rather than a substitution, RPSs may be ineffective in reducing emissions or climate change. With no requirement to reduce fossil-fuel-generated power by an equivalent mega-wattage, RPS mandates are being used by Investor Owned Utilities to create an artificial market above existing generation, even as efficiency and conservation reduce overall demand. In addition, utilities are playing the green card to justify lucrative new transmission infrastructure. If left unchecked, RPS policies could undermine efforts to reduce CO2 emissions, unnecessarily increase the cost of renewable energy, and delay by decades our transition to a new energy economy.

By converting public lands to industrial energy factories in fragile, remote areas with massive requirements for transmission at great cost to ratepayers and the environment, our renewable energy policy is taking the least enlightened path possible, while attempting to create the illusion of innovation and progress.

As of July 2012, eleven solar projects on over 36,000 acres had been approved on public lands. The projects range from 618 to 7,025 acres, with the average power plant exceeding 3,300 acres. As of July, pending proposals numbered 76, and would cover a total of 695,387 acres of public land (email communication, July 10, 2012, from Jayme Lopez, Renewable Energy Coordination Office, BLM). The scale, intensity, and pace of development on public lands are unprecedented. Massive solar power plants pose irreversible, long-term, cumulative ecosystem- and species-level threats to fragile desert and grassland biomes.

In addition, allowing applications for and approving so many projects at once has rendered public review of environmental impact studies, let alone understanding of the cumulative impacts, nearly impossible.

Net GHG Reduction Unproven

No scientific evidence has been presented to support the claim that these projects reduce greenhouse emissions. Indeed, recent evidence suggests that the opposite may be true. Recent work at the Center for Conservation Biology, University of California, Riverside, suggests that soil disturbance from large-scale solar development may disrupt Pleistocene-era caliche deposits that release carbon to the atmosphere when exposed to the elements, thus "negat[ing] the solar development C gains." Researchers call for more studies on groundwater depletion, landscape fragmentation, vegetation type conversion and regional carbon budgets. The researchers warn that "moving forward with industrial-scale solar developments in undeveloped desert habitats without quantifying the array of impacts…may unknowingly compromise biodiversity and soil disturbance from large-scale solar ecosystem functioning." (Allen, McHughen, Barrows. Impacts of Large-Scale Solar Development on Regional Ecosystem Dynamics: Critical Research Gaps. Desert Tortoise Council, 36th Annual Meeting and Symposium, February 18-20, 2011, Las Vegas, NV).

In addition, sulfur hexafluoride (SF6), used primarily as an electrical insulator in high voltage transmission of electricity, is the most potent of the six greenhouse gases regulated by the EPA, with a global warming potential 23,900 times that of CO2. One pound of SF6 is equivalent to

eleven tons of CO2, nothing sequesters it, and the chemical has a half-life in the atmosphere of 3,200 years (http://www.epa.gov/electricpower-sf6/basic.html). The cost and the effect on SF6 emissions of adding over 750 miles of new transmission infrastructure must also be factored into carbon-balance equations.

Until sound scientific research confirms the untested assumption that displacing intact, carbon sequestering desert and grassland ecosystems with solar power plants will, in fact, result in a net CO2 reduction, it is spurious to claim that the current policy represents progress in addressing the climate crisis.

Restoration and Mitigation are Speculative

Unlike other forms of energy extraction, concentrating solar development entails use of 100 percent of the surface of a site. Environmental impacts are long-term (decades to centuries) and any prospect of either short- or long-term reclamation is purely speculative. Indeed, the Draft Solar PEIS states, "In the extreme, natural recovery to pre-disturbance plant cover and biomass in desert ecosystems may take 50 to 300 years, with complete ecosystem recovery *potentially requiring more than 3,000 years"* (emphasis added, Lovich and Bainbridge 1999 cited in DPEIS, page 5-85).

Offsite mitigation and translocation of affected federally threatened and endangered species, including the desert tortoise, Mojave fringe-toed lizard, flat-tailed horned lizard, golden eagle and desert bighorn, is another severe, unresolved concern. Translocation efforts for sensitive species are still experimental. Inadequately assessed and mitigated impacts from developing large swaths of desert are likely to undermine vital conservation and recovery efforts.

It is impossible to determine how much land would be required as mitigation habitat for affected species such as the desert tortoise, because it is not known how many projects could ultimately be permitted. Further, there is little suitable habitat available on private lands in the areas most heavily targeted for industrial solar development, providing narrow opportunities to acquire whatever mitigation habitat might be needed.

The prospects for the species survival, upon which "take" permits are based are likely overly optimistic, as was proven at the Ivanpah project, where the number of tortoises far outnumbered the estimates upon which the original "take" permit was based. The overall impact of multiple projects will be devastating to vulnerable species dependent on these habitats, particularly to unique populations restricted to narrow habitat conditions that may be unable to survive outside their home area.

One important perspective on the mitigation question is provided in a report submitted by the Desert Renewable Energy Conservation Plan Independent Science Advisors, who said:

> Desert species and ecological communities are already severely stressed by human changes to the landscape, including urbanization, roads, transmission lines, invasive species, and disturbances by recreational, military, mining, and other activities. Additional stress from large-scale energy developments, in concert with a changing climate, portends further ecological degradation and the potential for species extinctions…

> We…strongly advocate using 'no regrets' strategies in the near term—such as siting developments in already disturbed areas—as more refined analyses become available to guide more difficult decisions.
>
> …In most cases, translocations and transplantations have been used as "feel good" actions that are generally not effective at sustaining populations. Moreover, the practice has the potential to do more harm than good to populations of rare species by increasing mortality rates and decreasing reproductive rates and genetic diversity. (http://www.energy.ca.gov/2010 publications/DRECP-1000-2010-008/DRECP-1000-2010-008-F.PDF).

The impacts on desert flora are also unknown. Scientists have not completed the floristic inventory of the California desert, one of the remaining floristic frontiers in the United States. Using the trends from the past 50 years and extrapolating forward in time, researchers can expect to discover another 200 native plant species in the California deserts over the next 50 years. Thus, approximately nine percent of today's California desert plants are not yet named by science. Given the scale and rapid pace of energy development in the desert regions, plant extinctions are likely, many involving species never discovered or named (Email communication from James Andre, Director, University of California Granite Mountains Research Center, February 17, 2011).

In addition, cultural resource conflicts are rife, as underscored by the concerns expressed by Native Americans and their legal challenges based on lack of consultation by the BLM.

Interior Refuses to Limit Industry Access

Throughout the history of the PEIS process and the policy that underlies it, the Interior Department has broadcast its intention to pursue renewable energy development only on those lands most suitable, while, conversely, backing away from setting hard limits on the access industry would have to public lands.

In an October 2010 conference call, Secretary Salazar alluded to setting aside 1,000 square miles (640,000 acres) for solar – about the amount of land in the Solar Study Areas (SSAs) in six states for which maps were made available prior to issuance of the Draft PEIS.

Late in 2010, as the release of the Draft PEIS approached in the wake of the Secretary's approval of several fast-track projects, many looked ahead to the PEIS expecting more rational and acutely focused analysis, resulting in a legally and biologically defensible program. It was widely assumed that the PEIS would begin with the 676,000 acres of SSAs and work from there to narrow down the public lands deemed appropriate for solar development.

Instead, in December 2010 BLM released a Draft PEIS with a Preferred Alternative that would keep 22 million acres of public land – about 33 times as much acreage as the SSAs – open to lease applications.

In July 2011, after BLM received 80,000 comments on the DPEIS, it announced that a Supplemental PEIS would be issued, creating yet another opening for a policy focused on "more

suitable" lands. Instead, the October 2011 Supplemental identified a Preferred Alternative keeping 21.5 million acres open.

The Final PEIS identifies a Preferred Alternative that leaves 19 million acres open to solar development applications—in the end, a mere 12 percent reduction in the original acreage.

Interior has essentially said that it will not establish any meaningful limits on what is available to industry.

The FPEIS Failed to Consider Viable Alternatives that are Consistent with the Interior Department's Renewable Energy Policy Objectives

In implementing the National Environmental Policy Act (NEPA), agencies must "[r]igorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14. The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.

Other than the no action alternative, BLM analyzed only alternatives dependent upon industrial scale solar energy development on relatively intact public lands. Solar Done Right and its constituent members, as well as EPA, previously noted that BLM failed to analyze at least two viable alternatives: a distributed generation (DG) alternative, and an alternative in which solar energy production and transmission facilities would be developed on previously degraded or damaged lands (the "degraded lands alternative"). Despite its claims in the Final PEIS, the Bureau is not constrained from analyzing these two alternatives that produce sufficient amounts of renewable energy in an environmentally superior manner.

Distributed Generation

Both Solar Done Right and the EPA stated strongly in their comments on the PEIS that the BLM should include a Distributed Generation alternative in its analysis. While the FPEIS acknowledges that "[distributed generation] will be an important component of future electricity supplies," it rejects the analysis of a distributed generation alternative based on outdated and incorrect assumptions.

To support its case for excluding a distributed generation alternative the FPEIS cites a 2008 report by Denholm and Margolis that only 23 percent of required electricity supplies could be met with rooftop photovoltaic (PV) solar.[1] (Denholm, P., and R. M. Margolis, 2008. Land Use Requirements and the Per-Capita Solar Footprint for Photovoltaic Generation in the United States. Energy Policy 36, 3531-3543).

Yet, numerous studies confirm that distributed rooftop solar potentially meets far more of our current electricity needs, faster and more cost-effectively, than remote, industrial-scale concentrating solar thermal or PV.

[1] Generally speaking, "rooftop" solar is shorthand for solar PV installed on commercial and residential rooftops, parking lots, highway easements, and virtually any site in the built environment that has suitable space for distributed generation.

In 2007, Navigant prepared a report for the California Energy Commission (CEC) that estimates the combined solar PV potential for residential and commercial rooftops in California was 5,025 gigawatts in 2010 and 6,789 gigawatts in 2016 (Navigant Consulting, Inc., 2007. California Rooftop Photovoltaic (PV) Resource Assessment and Growth Potential by County, California Energy Commission, PIER Program. CEC-500-2007-048).

A 2009 report to the California Public Utilities Commission (PUC) by Black & Veatch and Energy and Environmental Economics, Inc., identified 11,543 megawatts of large (greater than 1/3 acre) urban rooftop capacity and 27,000 megawatts of ground-mounted capacity near existing substations (Black & Veatch, December 2009. Summary of PV Potential Assessment in RETI and the 33% Implementation Analysis).

A July 2012 National Renewable Energy Lab (NREL) report found a total U.S. annual technical potential for rooftop PV of 664 gigawatts. Due to its mix of high population and relatively good solar resource, California has the highest technical potential, with 76 gigawatts (Lopez, A., Roberts, B., et al., National Renewable Energy Lab (NREL), July 2012. U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis, Technical Report NREL/TP-6A20-51946).

The full potential for distributed generation goes beyond the numbers cited in these studies, which consider only the most accessible commercial sites. A preliminary but more exhaustive assessment of "local" distributed PV, recently completed for the California Public Utilities Commission, found a technical potential of more than 15,000 MW between now and 2020. The study relies on the latest available PV cost data and entails a detailed assessment of PV interconnection potential at the distribution substation or feeder level that can be interconnected in a timely manner without lengthy permitting or costly upgrades. (Energy and Environmental Economics, Inc., March 2012. Technical Potential for Local Distributed Photovoltaics in California, Preliminary Assessment).

Further research is likely to find more and more benefits from rooftop solar. A recent study at UC-San Diego found that a roof covered with solar panels can help keep a building cooler and found the reduction in total annual cooling load for a PV-covered roof to be about 38 percent (http://www.jacobsschool.ucsd.edu/news/news_releases/release.sfe?id=1094).

Germany has proven that massive installations of distributed PV can be achieved rapidly when an appropriate contract structure, the feed-in tariff, is utilized (Nikki Fotheringham, "Germany: A Shining Example of Solar Success," Solarline, January 24, 2011).

In the first half of 2012, Germany installed nearly 4,300 megawatts. Nearly half, 1,800 megawatts, was installed in the single month of June (Anneli Palmen, "Germany installs record 4,300 MW solar in first half," Reuters, Aug. 2, 2012).

The majority of Germany's solar installations, 70 to 80 percent, are installed on rooftops (Eric Wesoff "German Solar Installations Coming In at $2.24 per Watt Installed, U.S. at $4.44," Greentechmedia, June 19, 2012; John Farrell, "Over 80 Percent of German PV Installed on Rooftops," Institute for Local Self-Reliance, January 19, 2011).

In the U.S., generation from distributed solar installations outstrips that of remote central station solar by a long shot (Susan Kraemer, "Utility-Scale Distributed Solar Gets Blast-Off in

California," Cleantechnica, January 23, 2010). The market trend towards many, smaller solar installations is expected to continue. According to a recent report from NPD Solarbuzz, solar installations smaller than 20 megawatts account for almost 90 percent of the U.S. solar pipeline. Projects 20 megawatts and larger account for less than 10 percent and installations over 100 MW account for less than 3 percent (Figure 1).

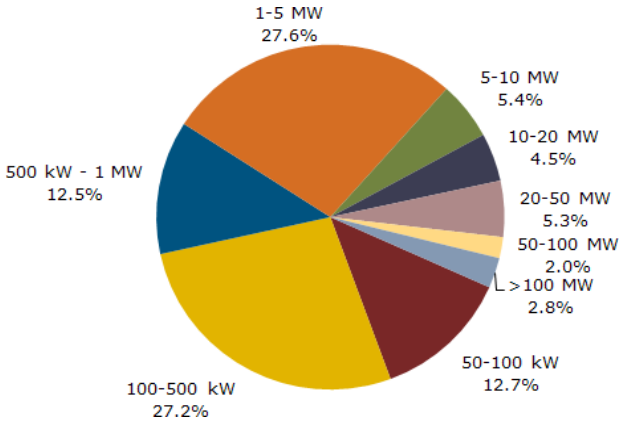

***Figure 1**. Size distribution of planned solar in the U.S., Source: NPD Solarbuzz*[2].

Reliability and Storage

The FPEIS further rejects the need for analyzing distributed generation by stating, "these systems typically do not include electricity storage, they cannot provide power during the evenings or at night, and the power output can fluctuate significantly during cloudy weather. As a result, buildings equipped with roof-top PV systems remain dependent on the transmission grid, and electric utilities must maintain adequate generating capacity to provide electricity to these customers when needed."

Remote, central station solar installations are equally subject to these concerns. However, the FPEIS ignores important advances in distributed energy storage (DES) and microgrid technologies that are expected to extend load profiles and significantly expand the capacity of the existing grid (National Alliance for Advanced Technology Batteries, April 10, 2012. Distributed Energy Storage: Serving National Interests: Advancing Wide-Scale DES in the United States. Prepared by KEMA, Inc.; John Farrell, "Are the Batteries Ready? 100% Clean Energy Requires Progress on Storage," Renewable Energy World, August 7, 2012).

The increased reliability and security of many small installations spread over a large geographic area makes distributed generation far less vulnerable than massive centralized solar power plants that could be shut down by a single cloud event (Broekhoven, S.B., Judson, N., et al., Microgrid Study: Energy Security for DoD Installations, Technical Report 1164, Lincoln Laboratory: Massachusetts Institute of Technology, Prepared for the Office of Secretary of Defense, June 18, 2012; Debra Valine, "USACE Announces New Action to Support Deployment of Renewable Energy on U.S. Military Installations," www.army.mil,; Mills, Andrew and Ryan Wiser, Implications of Wide-Area Geographic Diversity for Short-Term Variability of Solar Power, Ernest

[2] "Small Solar is 40% of US Project Pipeline," Sustainablebusiness.com, Aug. 14, 2012.

Orlando Lawrence Berkeley National Laboratory, Environmental Energy Technologies Division, September 2010).

DG is also a far superior alternative from the standpoint of potential catastrophic and/or terrorism-related events. The Department of Energy has shown:

> In addition to the potential benefits for electric system planning and operations, DG can also be used to decrease the vulnerability of the electric system to threats from terrorist attacks, and other forms of potentially catastrophic disruptions, and to increase the resiliency of other critical infrastructure sectors … such as telecommunications, chemicals, agriculture and food, and government facilities (U.S. Department of Energy, February 2007. The potential benefits of distributed generation and rate-related issues that may impede their expansion: A study pursuant to section 1817 of the Energy Policy Act of 2005).

The *Wall Street Journal* reported on actual and potential cyber-attacks on large electrical systems:

> Last year, a senior Central Intelligence Agency official, Tom Donahue, told a meeting of utility company representatives in New Orleans that a cyber attack had taken out power equipment in multiple regions outside the U.S. The outage was followed with extortion demands, he said.
>
> The U.S. electrical grid comprises three separate electric networks, covering the East, the West and Texas. Each includes many thousands of miles of transmission lines, power plants and substations. The flow of power is controlled by local utilities or regional transmission organizations. The growing reliance of utilities on Internet-based communication has increased the vulnerability of control systems to spies and hackers, according to government reports (http://online.wsj.com/article/ SB123914805204099085.html).

The FPEIS assertion that, "ultimately, both utility-scale and distributed generation solar power will need to be deployed at increased levels, and the highest penetration of solar power overall will require a combination of both types" is counter to market and technology trends that clearly favor distributed solar generation over the outmoded model of remotely sited centralized power generation.

In his article "Federal Government Betting on the Wrong Solar Horse," engineer and PV expert Bill Powers points out:

> The Department of Energy (DOE) is in the process of completing a potentially landmark study, the Solar Vision Study (SVS). It maps out a strategy to provide the United States with 10 to 20 percent of its electric energy from solar power by 2030. The document appears to be intended to serve as technical support for a national strategic commitment to solar thermal development….
>
> …A revised and corrected SVS would envision a solar future that is effectively 100 percent solar PV. This PV future would also be predominantly smaller-scale PV

> connected at the distribution level, to avoid the expense of transmission. Otherwise, enormous costs for new transmission capacity would be necessary to move remote Southwest solar power to demand centers around the country (Powers, Bill. "Federal Government Betting on Wrong Solar Horse," Natural Gas & Electricity Journal, Dec. 2010).

A strategy focused primarily on distributed PV is clearly the fastest, most efficient, cost-effective and environmentally sound approach to meeting state Renewable Portfolio Standards, reducing greenhouse gas emissions and expanding solar power production in the United States.

Solar Development on Degraded Lands

In addition to distributed generation, another alternative for Interior's renewable energy program is solar energy generation on a variety of degraded lands, including degraded public lands.

Solar Done Right noted the benefits of siting solar development on previously degraded lands rather than intact desert lands in its PEIS comment letters. The EPA "strongly [encouraged] BLM, DOE, and other interested parties to pursue siting renewable energy projects on disturbed, degraded, and contaminated sites, before considering large tracts of undisturbed public lands (USEPA Region IX scoping letter on PEIS dated September 8, 2009)." These issues were also discussed at length in EPA's comments on the Draft PEIS, including many details on disturbed, degraded, or contaminated lands BLM could consider.

The EPA's Office of Solid Waste and Emergency Response has been identifying abandoned mine lands, brownfields, Resource Conservation and Recovery Act (RCRA) sites, and federal and non-federal Superfund sites that may be suitable for solar and other non-fossil fuel energy projects. Following the same methods used by the National Renewable Energy Lab to identify suitable concentrating solar generation sites, EPA identified a "technical potential" of 920,000 MW of solar generation on degraded sites (http:// www. epa.gov/oswercpa/).

In its comment on the Draft PEIS, the EPA stated:

> EPA plans to submit a list of contaminated sites tracked in our database that are located on or near BLM-administered lands in the six-state area. The Final PEIS should publish this list and screen these sites for solar energy development potential. Developers can and should work with EPA or State environmental offices to determine reasonable steps that can be taken to address any environmental liability issues at the project level stage.

This information was not included in the Final EIS.

Other entities, too, have identified lands other than undisturbed public lands that should be considered as alternatives to the sites BLM is targeting. For example:

- In April 2009, several environmental organizations issued draft recommendations for solar energy development study areas consistent with their own siting criteria. These areas, just in California, comprised 53,400 acres of BLM-managed public land and 242,200 acres of adjacent private lands (California Desert and Renewable Energy

Working Group. Recommendations to Secretary of the Interior Ken Salazar on Ways to Improve Planning and Permitting for the Next Generation of Solar Energy Projects on BLM Land in the California Desert. December 22, 2010).

- In its Impact Reviews for fast-track solar projects, the California Energy Commission also identified disturbed public and private land sites as suitable alternatives to some of the proposed undisturbed public land sites. In a compilation of the CEC's comments on these sites and some of his own research, engineer Bill Powers shows yet more alternative sites for several of the projects (Bill Powers, Powers Engineering, Preferred Disturbed Land Sites Evaluated in EIR/EIS for Fast-Track BLM Solar Projects, January 31, 2011).

- Westlands Solar Park in California's Central Valley includes approximately 30,000 acres of disturbed land targeted for renewable energy development within the Westlands Water District, where agricultural land has been rendered unusable by salt buildup from long-term, intensive irrigation. The project is believed to be suitable for up to 5 gigawatts of solar power generation (http://www.westlandssolarpark.com/).

None of the examples above offers the entire solution, but to turn a blind eye to the potential solar energy development on degraded private and public lands to focus on undeveloped public lands is counter to the public interest and defies common sense.

BLM Relied on a Faulty Rationale to Unnecessarily Limit the Alternatives It Considered in the PEIS

BLM has cited a section of the Energy Policy Act of 2005 (PL 109-58) to exclude those two alternatives from the PEIS. It reads:

> It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity.

BLM's circumscribing of alternatives is wrong on two counts. First, the Bureau has misconstrued the effect of the relevant language in the Energy Policy Act of 2005. Second, BLM wrongly presumed that 10,000 megawatts of solar energy projects could only be developed on relatively intact public lands rather than on previously degraded or damaged public lands.

A Sense of Congress resolution is not a mandate

A Sense of Congress resolution, even when bracketed within a larger Act of Congress, does not have the force of law. The Secretary of the Interior, therefore, is not required to have approved solar energy projects capable of producing 10,000 megawatts of power by 2015. This is clear from the use of the word "should" rather than the use of the word "shall." "Shall" denotes a mandatory duty or requirement whereas "should" expresses a recommendation only. Given the considerable, irreversible impacts Interior's renewable energy policy may ultimately impart on hundreds of thousands, perhaps millions, of acres of public lands in the six southwestern states,

NEPA's mandate to evaluate a reasonable range of alternatives to foster public discussion and informed decision-making must trump the non-binding recommendation of Congress.

A distributed generation (DG) alternative, as suggested by Solar Done Right and many other commenters, is certainly capable of generating 10,000 megawatts of power by 2015. While DG development would not take place on public lands, it would accomplish Congress' broader goal with the Energy Policy Act of establishing a viable renewable energy industry in the United States that can supplement and eventually replace the country's current carbon-based energy industry.

10,000 MW of solar energy could be generated on projects sited on degraded public lands

Even if the Energy Policy Act of 2005 mandated, rather than merely recommended, that the Secretary approve renewable energy projects capable of generating 10,000 megawatts of electricity by 2015, that quantity of renewable energy could be generated on already degraded public lands closer to urban areas than the relatively intact public lands located in the Solar Energy Zones (SEZs) and on the 19 million acres overall that could be made available. Therefore, BLM should have considered an alternative action suggested by Solar Done Right, EPA, and many others to analyze the costs, benefits and environmental impacts of a Department of the Interior renewable energy program that prioritized the siting of solar energy projects on degraded lands.

The DG and Degraded Lands Alternatives Better Comply with Amended Order 3285A1

Yet another reason BLM should have analyzed the DG and degraded lands alternatives is that both better comply with Amended Federal Order 3285A1, issued by Interior Secretary Ken Salazar on February 22, 2010. The Order takes its authority from Section 3 of the Energy Policy Act of 2005 and therefore also constitutes a DOI policy choice. Nevertheless, the Order states that "as the steward of more than one-fifth of our Nation's lands," the department "has a significant role in coordinating and ensuring environmentally responsible renewable energy production. . . ." The Order states that the department will "encourage the timely and responsible development of renewable energy and associated transmission while protecting and enhancing the Nation's water, wildlife, and other natural resources." Given the significant impacts from large-scale concentrating solar that cannot be mitigated, the goal of "protecting and enhancing the Nation's water, wildlife, and other natural resources" while implementing large scale "environmentally responsible" solar development, cannot be met through any of the alternatives being analyzed in the PEIS.

Conversely, by preserving relatively pristine desert public lands, both the DG and degraded lands alternatives would better protect and enhance our natural resources while also encouraging the timely and responsible development of a renewable energy industry in the U.S. Although BLM interprets the Amended Order to proscribe consideration of the DG and degraded lands alternatives in the PEIS, the plain language of the Order calls for inclusion of those two alternatives.

It is important to note that the Amended Order also states that agencies and bureaus within the Department of Interior "will work collaboratively . . . with other Federal agencies [and] departments" in encouraging the development of renewable energy while protecting natural

resources. The EPA has submitted substantial comments on the iterations of the PEIS to identify deficiencies with the document, asked BLM to analyze DG and degraded lands alternatives, and suggested collaborating with BLM to develop a database of degraded lands suitable for solar energy production. The Final PEIS, by failing to analyze the suggested alternatives and not listing or cataloging available degraded lands, has not conformed to the Amended Order.

Council on Environmental Quality (CEQ) Regulations Support Analyzing Additional Alternatives in the PEIS

CEQ has stated,

> Section 1502.14 [of the NEPA regulations] requires the EIS examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. 46 Fed. Reg. 18026 (March 23, 1981)

CEQ further explained,

> An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Section 506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. 46 Fed. Reg. 18026 (March 23, 1981)

BLM seemingly understood this instruction from CEQ, as it issued its own Instructional Memorandum No. 2011-05938 acknowledging that in some circumstances the Bureau may choose to evaluate a non-federal land alternative or different technology alternative raised through scoping, "to the extent necessary to support a decision regarding the pending application." The establishment of the Department of the Interior's program for solar energy development in the six southwestern states is such a circumstance. To comply with NEPA, the BLM should supplement the PEIS with an analysis of the DG and degraded lands alternatives.

Analysis in the PEIS of the impacts of the alternatives suggested by Solar Done Right would serve to provide information to the public about the impacts of utility-scale development on public lands vis-à-vis attainable conservation efforts, distributed generation of solar energy, and generation of solar energy on already degraded public and private lands. Analysis of the suggested alternatives would also spur public discussion and participation in the nation's development of its renewable energy plan. Most important, analysis of the suggested alternatives would provide additional information that would aid the Director in deciding whether to proceed with utility scale energy development with known long-term significant impacts on fragile desert public lands.

The PEIS Failed to Analyze or Improperly Analyzed Environmental Impacts Within Several SEZs

In addition to the deficiencies with the alternatives analysis, the PEIS suffers from incomplete or incorrect analysis of many environmental impacts. Due to its immense size and scope, we were not able to review the entirety of the environmental impacts section of the FPEIS within the allotted protest period. However, we were able to review the impacts analysis for several Solar Energy Zones with which we are particularly familiar and note the deficiencies we found for those SEZs listed below. The deficiencies are significant and call for correction or additional study before any renewable energy program decision can be made based on the contents of the PEIS. We fear they are emblematic of the insufficiency of analysis and disclosure in the entire PEIS.

Amargosa Valley SEZ

- The FPEIS states, "The golden eagle is an uncommon to common permanent resident in southern Nevada. This species was not analyzed for the Amargosa Valley SEZ in the Draft Solar PEIS … On the basis of an evaluation of SWReGAP land cover types, potentially suitable nesting (cliffs and rock outcrops) does not 27 occur on the SEZ or area of indirect effects (Table 11.1.12.1-1)." The statement is wrong. According to the Atlas of the Breeding Birds of Nevada, there is one confirmed nesting record of golden eagle and one probable nesting record on ranges along the eastern side of the Amargosa Valley. (Floyd, Ted, Chris Elphick, Graham Chisolm, Kevin Mack, Robert Elston, Elisabeth Ammon, and John Boone. 2007. University of Nevada Press: Reno).

  Loss of foraging habitat, too, may be a serious issue in the Amargosa SEZ, and collisions with transmission lines, power blocks, power towers, and other structures could adversely impact golden eagles in the area.

- Similarly, the PEIS states that the Lucy's warbler, long eared owl, Crissal's thrasher, Grey vireo, La Conte's thrasher, loggerhead shrike, and prairie falcon were not analyzed for the Amargosa SEZ, as many of these species are "uncommon" in southern Nevada. Yet many of these species occur in specialized habitats such as wetlands. While wetlands are rare in the Mojave Desert, species that inhabit the wetlands may be common residents. The Audubon database provides information regarding bird species in the area (http://list.audubon.org/wa.exe?A0=NVBIRDS), and given the potential impact of the developments, it was negligent to exclude analysis for these species.

- This neglect also extends to any discussion of how the avian solar flux issue would be mitigated in the Amargosa Valley for solar power tower designs, and polarized glare for the large photovoltaic installations in the area. (Avian Mortality at a Solar Energy Power Plant. McCrary, Michael D., Robert L. McKernan, Ralph W. Schreiber, William D. Wagner, and Terry C. Sciarrotta, Journal of Field Ornithology, 57(2): 135-141; http://cochise.az.gov/ uploaded Files/Planning_and_Zoning/Agendas_ and_ Meeting_Minutes/Solar%20One%20Avian%20Mortality%20Study.pdf).

The Nature Conservancy's Mojave Desert Ecoregional Assessment discusses the impacts of polarized light pollution on birds and insects:

> Light and noise pollution associated with electrical power plants can be problematic for wildlife. Polarized light pollution from PV panels can attract aquatic insects and other species that mistake the panels for bodies of water, potentially leading to population decline or even local extinction of some organisms (Horvath et al. 2010). Nighttime lighting for security or other reasons may negatively impact a variety of Mojave Desert species, many of which have developed nocturnal behavior to escape the daytime heat of the desert. (Mojave Desert Ecoregional Assessment, September 2010, The Nature Conservancy of California).

- In regard to desert tortoise "compensatory mitigation," the PEIS does not explain whether lands acquired to compensate for the loss of tortoise habitat would constitute habitat of the same genetic population as the Amargosa Valley, once defined as the Northeastern Recovery Unit for the desert tortoise. This is a critical issue, as habitat may not be interchangeable for distinct genetic populations, rendering mitigation ineffective. The Amargosa Valley area has a genetically distinct population of desert tortoises (Hagerty, B.E. 2008. Ecological genetics of the Mojave Desert tortoise. PhD Thesis, University of Nevada, Reno; Hagerty, B.E., and C. R. Tracy. 2010. Defining population structure for the Mojave desert tortoise. Conservation Genetics. DOI 10.1007/s10592-010-0073-0).

- No information is provided to indicate if or when rare plant surveys were conducted in the Amargosa SEZ. Frequency and timing of such surveys is critical, due to rainfall distribution over the year or years and seasonal attributes of plant species.

- The analysis ignores the desert bighorn sheep, a big game species that has potential to use the site for foraging habitat. In addition to forage, the Amargosa SEZ could also serve as a wildlife linkage or connectivity zone. Alluvial fans near steep rocky terrain can provide crucial foraging habitat for bighorn sheep. For example, ewes at the end of gestation that need nutrients may come down from steep, rocky terrain looking for higher quality forage. They may use areas for only three weeks, but those three weeks are critical.

  Bighorn biologists Dr. John Wehausen and Dr. Vern Bleich have concluded that radio telemetry studies of bighorn sheep in various southwestern deserts, including the Mojave Desert of California, have found considerable movement of these sheep between mountain ranges. "Consequently, intermountain areas of the desert floor that bighorn traverse between mountain ranges can be as important to the long-term viability of populations as are the mountain ranges themselves" (Bleich, V.C., J.D. Wehausen, and S.A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conserv. Biol. 4:383-390; Bleich, V.C., J.D. Wehausen, R.R. Ramey II, and J.L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. pp. 453-473, In: D. R. McCullough, (ed.), Metapopulations and wildlife conservation management. Island Press, Washington, D.C.).

- The PEIS does not discuss potential public health impacts to Amargosa Valley from cases of Coccidioidomycosis (Valley Fever), a disease spread when spores in soil are transported by blowing dust, such as occurs with large-scale soil disturbance. The community of Pahrump, Nevada, about 45 miles south of the SEZ, reported cases of Coccidioidomycosis in 2004 (http://www.pahrumpnv.org/pahrump-nevada/documents/agendas-minutes/june-22-2004/#minutes). The PEIS should have addressed the potential public health threat to the communities of Amargosa Valley, Beatty, and Pahrump of dust emissions from construction on over 8,000 acres of land.

Millers SEZ

- No analysis was done regarding Basin and Range Watch comments about the importance of the Miller's Rest Stop bird oasis next to the Millers SEZ, nor was there any discussion of socioeconomic impacts on tourism if birds are negatively affected by power tower developments in the SEZ.

Gold Point SEZ

- The wildlife list does not include pronghorn antelope and desert bighorn sheep, both of which would lose connectivity and foraging habitat if the Gold Point SEZ is developed. The only mention of big game species is: "The fencing around the solar energy development should not block the free movement of mammals, particularly big game species." (11.6-9) Special fences are required for antelope because they cannot jump over, and instead crawl under, fence lines. No discussion of this was included in the Gold Point SEZ analysis.

- The SEZ-specific design discussion states, "Groundwater supplies during the construction and operations phases would need to be secured through coordination of the NDWR in terms of obtaining groundwater rights with in the Lida Valley groundwater basin, and potentially from off-site sources and adjacent groundwater basins for the construction phase." (11.6-7).

  Comments Basin and Range Watch submitted concerning the arid nature of the Lida Basin and Gold Point SEZ were not addressed. This basin has scant groundwater resources and should not be pumped for technologies that use large amount of water, thus comments recommended that no solar -thermal development be permitted in the Gold Point SEZ.

- The visual resources analysis does not recognize the significance of the Gold Point Ghost Town as an historic site and tourist destination. Impacts from new transmission and industrial solar development would remove the historic character of the region.

Conclusion

Western Lands Project, Basin and Range Watch, and Solar Done Right are protesting the FPEIS for Solar Energy Development in Six Southwestern States and associated Proposed Resource

Management Plan Amendments because BLM failed to consider viable alternatives to utility-scale solar energy development on undisturbed desert public lands and because it neglected or misstated numerous environmental impacts in several Solar Energy Zones. Distributed generation and degraded lands alternatives better serve the purpose and need for the Department of Interior's renewable energy program by protecting the nation's natural resources while helping build a viable renewable energy industry for the future. Both alternatives could provide the development of 10,000 megawatts of solar energy capacity by 2015. As solar technology evolves and matures it could be scaled up to eventually provide a significant portion of the nation's energy needs.

The goal of generating 10,000 MW of renewable energy from public lands by 2015 will likely be substantially exceeded–assuming the projects do not fail—with just solar projects approved and in process at this time. As of July 2012, 11 approved solar projects were anticipated to generate 4,532 MW, and 76 pending applications an additional 33,154 MW. We are not suggesting that an overall goal of generating renewable energy should stop at 10,000 MW (siting issues aside), however, as the EPA states in its DPEIS comments:

> While that objective represents only a fraction of our national renewable energy potential, it is an important benchmark cited as a driver for both the PEIS and other renewable energy projects currently under review. Under the Reasonably Foreseeable Development Scenario (RFDS), BLM and DOE estimate that 214,000 acres of BLM-administered land (24,000 MW) and 71,000 acres of private land (8,000 MW) will be necessary to support the estimated amount of solar energy generated over the next 20 years in the six-state region. Although EPA strongly supports the development of renewable sources to meet a far greater portion of the nation's energy needs, we believe that the selection of the preferred alternative, as described in the Draft PEIS, would be ill-advised at the present time. (USEPA Region IX comment letter on Draft PEIS dated May 2, 2011: http://www.epa.gov/region9/nepa/letters/solar-energy-six-states-DPEIS.pdf)

Siting industrial-scale solar power plants on high-value, intact public lands is unnecessarily damaging and counter-productive in light of viable alternatives such as siting solar development on the nation's millions of acres of disturbed, degraded and contaminated lands, and large- and small-scale solar developments on rooftops and everywhere in the built environment.

Sincerely,

Janine Blaeloch

Janine Blaeloch
Director
Western Lands Project
On behalf of Basin and Range Watch and Solar Done Right