

# US Public Lands Solar Policy:



# Wrong *from* The Start

A report on the  
Draft Solar Programmatic Environmental Impact Statement  
of the US Interior and Energy Departments

## Solar Done Right

April 4, 2011  
available for download at [solardoneright.org](http://solardoneright.org)





## Executive Summary

The Departments of Energy and the Interior are preparing a Programmatic Environmental Impact Statement (PEIS) to evaluate utility-scale solar energy development, to establish environmental policies and mitigation strategies for solar energy projects, and to amend relevant BLM land use plans with the consideration of establishing a new BLM Solar Energy Program. Though it is billed as a way of making solar development “Smart From The Start,” the PEIS is a significant step further into a reckless, ultimately ineffective energy policy.

The need to move to a renewable-based energy economy, and quickly, is urgent. Global warming threatens to unwind the relatively stable climate regime that has supported the evolution of present human and ecological systems.

But **the Draft PEIS is fundamentally flawed**. The current document follows an exploitive, outmoded approach, mired in 19th Century attitudes toward public land, coupled with financially and environmentally-subsidized, outmoded technology that will fail to achieve a responsible energy future.

The PEIS dismisses alternatives such as distributed generation, limiting solar development to populated areas, or conservation and demand-side management, on the basis that its purpose and need is “responding in a more efficient and effective manner to the high interest in siting utility-scale solar energy development on public lands.” But the agencies are required to consider a far broader range of alternatives. As the Council on Environmental Quality has stated:

*“An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS [as well as] alternatives that are outside the scope of what Congress has approved or funded... 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.”*

Massive solar power plants pose irreversible, long-term, cumulative ecological threats to fragile deserts and grasslands. Unlike other forms of energy extraction, concentrating solar development entails use of as much as 100 percent of the surface of a site. Environmental impacts will endure for decades to centuries, and the prospects for restoration are purely speculative.

Even prior to the PEIS, there were numerous deficiencies in the BLM’s National Environmental Policy Act (NEPA) process for these projects. They included:

- ✱ Inadequate or absent biological surveys
- ✱ Failure to adequately assess indirect impacts
- ✱ Failure to consider a reasonable range of project alternatives
- ✱ Narrow purpose and need statements
- ✱ Absence of baseline visual and noise resource analysis
- ✱ Inadequate cumulative impacts analysis
- ✱ Deficient underlying planning documents that never contemplated this scale of development and have no relevant guidelines that limit acceptable change
- ✱ Unresolved, deferred, and inadequate mitigation measures

Despite the crucial importance of lowering our carbon emissions, no scientific studies have been done to examine the claim that these projects reduce net greenhouse gas emissions once construction, transmission, and the disruption of carbon-sequestering ecosystems on site are taken into account.

Interior's stated 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 DPEIS.

#### Alternative sites and technology

By offering up public resources, the BLM is subsidizing the same energy interests that have profited by oil and gas development on public lands and waters (BP, Chevron). Taxpayer-funded subsidies in the form of cash grants and federal loan guarantees are going to the same financial players that helped bring the country to the edge of financial meltdown (Morgan Stanley, Goldman Sachs). But if we are to realize our full renewable energy potential, we must make a major departure from the old energy business model.

There are sound alternatives to the current path, including sites and technology.

- ✱ EPA has identified millions of acres of abandoned mine lands, brownfields, and federal and non-federal Superfund sites that may be suitable for solar and other non-fossil-fuel energy projects.
- ✱ In California alone, environmental organizations have identified almost 300,000 acres of BLM land and adjacent private lands that would meet their stricter siting criteria for utility-scale solar.



- ★ The Westlands Water District in California's Central Valley includes approximately 30,000 acres of degraded agricultural land believed to be suitable for up to 5 GW of solar power generation.

Installation in populated areas, the built environment, and/or damaged lands makes infinitely more sense.

Moreover, a strategy focused primarily on distributed PV would be the most cost-effective and fastest way to expand solar power production in the United States. When all costs are factored in—including new transmission infrastructure and transmission line losses—local, distributed solar PV is comparable in efficiency, faster to bring online, and more cost-effective than remote utility-scale solar plants.

In short, we can prevent irremediable damage from utility-scale solar development on our public lands by prioritizing distributed generation from PV installations in the built environment.

We urge government, utilities, the mainstream environmental movement and the public to abandon this destructive path, scrap the PEIS, and help us make distributed generation in the built environment the centerpiece of our energy policy.

### About Solar Done Right

Solar Done Right is a coalition of public land activists, solar power and electrical engineering experts, biologists and renewable energy advocates who view with great concern the industry and government momentum behind siting industrial scale, centralized solar power stations on large swaths of ecologically valuable public lands.





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**Shady parking spaces provide power in Las Vegas**

The built environment provides potential for thousands of megawatts of electrical generation, but the PEIS ignores this far more practical and economical option. Photo by J. N. Stuart, some rights reserved under Creative Commons



## Solar Done Right

Solar Done Right is a coalition of public land activists, solar power and electrical engineering experts, biologists and renewable energy advocates who view with great concern the industry and government momentum behind siting industrial scale, centralized solar power stations on large swaths of ecologically valuable public lands.

We have come together to urge government, utilities, the mainstream environmental movement and the public to abandon this destructive path, and to work toward generating the power we need in the built environment.

Solar Done Right holds that there is a proper hierarchy of priority for strategies to end our nation's addiction to fossil fuels. We should start the switch by using the most cost-effective strategies for renewable energy production, which also happen to be the least environmentally destructive. In descending order of priority:

1. **Reduce demand.** According to some estimates, an aggressive program of conservation and energy efficiency using currently available technology could reduce US power consumption by nearly one third.<sup>1</sup>
2. **Generate renewable energy at or near the point of use.** Distributed solar generation on homes and businesses is cost-competitive and does not incur the energy loss of distribution through transmission lines. Users can benefit through reduced utility bills or sales of power into the grid, or both. Installation time from project conception to completion is measured in weeks rather than years.
3. **Generate renewable energy on a larger scale within the built environment.** Most cities possess large industrial spaces including warehouse roofs, brownfields, large parking lots, airports, and other areas that could be either converted to or augmented with renewable energy production using existing technology. Emerging technologies offer promise for additional methods to incorporate solar energy production into new residential and commercial construction.

1) <http://tinyurl.com/m4vphk>

We maintain that a mixture of these techniques can meet our electrical energy needs without sacrificing biologically valuable desert and grassland ecosystems with large scale concentrating

**Colorado's San Luis Valley, targeted for industrial solar development**

solar power plants. Should these common-sense methods fail to meet our society's long-term demand for renewable energy, centralized solar power plants should be sited only on available disturbed, degraded and contaminated lands that offer little carbon sequestration, wildlife habitat or other natural resource values. Renewable technologies that do not deplete scarce arid land water resources should be prioritized. In any event, prudent and responsible renewable energy development should always steer large-scale renewable energy production away from intact public and private wildlands and prime agricultural lands.

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## Background

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. At the same time, our economy has been rocked by global financial market crises that threaten to undermine our long-term economic security. 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 US, 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 Energy Portfolio Standards (RES) in many states, including the six states analyzed for solar resources in the PEIS, reflects this old energy paradigm.

Reducing CO<sub>2</sub> emissions has been cited as an “overriding consideration” by the California Energy Commission for permitting solar projects that have otherwise failed to meet environmental standards. DOI and DOE need to review the effectiveness of RESs in reducing emissions before pursuing a national RES policy. By mandating a market “add-on,” rather than a substitution, RESs may be ineffective in reducing emissions or climate change. Because there is no requirement to reduce fossil-fuel-generated power by an equivalent megawattage, RES mandates are being used by Investor Owned Utilities (IOUs) 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.<sup>2</sup> If left unchecked, RES policies could undermine efforts to reduce CO<sub>2</sub> emissions, unnecessarily increase the cost of renewable energy, and delay by decades our transition to a new energy economy.

<sup>2</sup> Overland, Carol A, Attorney; “Transmission: It’s all connected,” Slide 13, public presentation, January 20, 2011, Adams State College, Alamosa, CO, <http://tinyurl.com/4eznf6c>



**A federally listed  
threatened  
desert tortoise  
in the Mojave  
Desert**

Massive solar  
power plants pose  
irreversible, long-  
term, cumulative  
ecosystem and  
species-level threats  
to the tortoise's  
fragile desert habitat.

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## Business as usual

### “Leading” in the wrong direction

The Administration claims to be making sweeping changes in the way we generate energy in this country, yet there is nothing new or innovative about its policy other than that it uses solar in place of traditional fossil fuel energy to power massive centralized generation stations on a scale never before seen.

Even many purported progressives have taken the approach that we must “do it all, everywhere” in order to confront the climate crisis, yet ignored in the analysis are the environmental damage and counter-productivity of siting industrial-scale solar development on carbon-sequestering, ecologically valuable intact public lands. Though allusions are frequently made to the need to site solar power plants wisely and in an “environmentally responsible” manner, serious efforts to act on these concerns are sorely lacking.

There is a severe lack of proper leadership on renewable energy policy in the US. Solar Done Right believes this leadership vacuum will endure as long as the Bureau of Land Management remains in charge of solar energy development. As long as remote, pristine and near-pristine desert in the public sphere is the centerpiece of solar development siting, the BLM remains indispensable and has no reason to relinquish its current role.

### Same old energy interests

By offering up public resources, the BLM is subsidizing the same energy interests that have profited by oil and gas development on public lands and waters (BP, Chevron). Taxpayer-funded subsidies in the form of cash grants and federal loan guarantees are going to the same financial players that helped bring the country to the edge of financial meltdown (Morgan Stanley, Goldman Sachs).

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, staying close to the status quo while attempting to create the illusion of change.

Fourteen solar projects on over 60,000 acres and more than 750 miles of new high-voltage transmission projects have been fast-tracked on public lands.<sup>3</sup> The projects range from 516 to 7,840 acres, with the average power plant exceeding 4,300 acres. This scale and intensity of development on public lands is unprecedented. Massive solar power plants pose irreversible, long-term, cumulative ecosystem and species-level threats to fragile desert and grassland biomes.

3) BLM, Fast-Track Renewable Energy Projects, updated: Jan. 6, 2011: <http://tinyurl.com/y8n6z99>



In addition, expediting so many fast-tracked projects all at once has rendered public review of environmental impact studies nearly impossible.

#### Failure to meet environmental standards

Numerous deficiencies in meeting National Environmental Policy Act (NEPA) legal requirements have been documented by agencies and environmental groups<sup>4</sup>, including, but not limited to:

4) Al Weinrub, *Community Power: Decentralized Renewable Energy in California*, November 2010, page 26: <http://tinyurl.com/4o2l2kj>

- ✱ Inadequate or completely lacking biological surveys
- ✱ Failure to adequately assess indirect impacts
- ✱ Failure to consider a reasonable range of project alternatives
- ✱ Narrow purpose and need statements
- ✱ Absence of baseline visual and noise resource analysis
- ✱ Inadequate cumulative impacts analysis
- ✱ Deficient underlying planning documents that never contemplated this scale of development and have no relevant guidelines that limit acceptable change
- ✱ Unresolved, deferred, and inadequate mitigation measures

The fast-track process puts enormous pressure on responsible agencies and staff to rush through evaluations of largely unknown technologies on an unprecedented scale. In acknowledgement of the serious shortcomings of the fast-track process, even otherwise compliant environmental groups issued the following “disclaimer” of the fast-track process:<sup>5</sup>

5) NRDC, Sierra Club *et al*, Comments on Chevron Energy Solutions Lucerne Valley Solar Project, May 2010.

*“We urge the BLM and the Interior Department to acknowledge publicly the deficiencies of the current [fast track] process and to commit publicly to improving it. More specifically, we urge both entities to affirm that neither the current process, nor any of the project sites, nor any of the environmental documents, establish any legal or procedural precedents for future decision-making, siting or environmental review.”*

As of this writing, Secretary Salazar has approved nine of the fourteen fast-tracked utility-scale solar developments on public land, six in the deserts of California and three in Nevada, the proposed plants’ maximum generating capacity totalling approximately 3,200 MW on more than 29,000 acres.



In many cases, agency staff determined projects to have multiple, unmitigatable adverse environmental impacts. Rather than reducing the scale, redirecting projects away from sensitive habitats, or denying project approvals, agencies invoked subjective “overriding considerations” to push otherwise unwarranted approvals through. The move was based on a hypothetical assertion that reduced greenhouse gas emissions resulting from solar generation would offset negative environmental impacts. The Imperial Valley Solar Project offers a case in point:

*“...Staff believes that the direct project impacts to biological resource, and soil and water resources, and visual resources, and the cumulative impacts associated with biological resources, land use, soil and water resources, and visual resources for the Imperial Valley Solar (IVS) Project will be significant. There is no feasible mitigation that would reduce the impacts to a level that is less than significant given the scale of the project, and other projects that were cumulatively considered...staff recognizes that due to a lack of information regarding the long-term performance of this new technology, it is uncertain whether the applicant’s claims regarding reliability will be met.”<sup>6</sup>*

Agency staff nevertheless concludes:

*“Notwithstanding the unmitigatable impacts...it will provide critical environmental benefits by helping the state reduce its greenhouse gas emissions, and these positive attributes must be weighed against the projects adverse impacts. It is because of these benefits and the concerns regarding the adverse impacts that global warming will have upon the state and our environment, including desert ecosystems, that staff believes it would be appropriate for the Commission to approve the project based on a finding of overriding considerations...”<sup>7</sup>*

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. In a seven-year monitoring study, researchers at the University of Nevada, Las Vegas found that carbon sequestration rates in Mojave Desert ecosystems rival or exceed that of some forest and grassland ecosystems.<sup>8</sup>

More 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.”

6) California Energy Commission Staff, Staff’s Comments Regarding a Possible Energy Commission Finding of Overriding Considerations – Imperial Valley Solar Project (08-AFC-5), July 27, 2010: <http://coyot.es/x2dd>

7) Ibid.

8) Richard Stone, “Have Desert Researchers Discovered a Hidden Loop in the Carbon Cycle?” *Science*, June 16, 2008: <http://tinyurl.com/4jmhawk>



Allen, *et al.* 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 ecosystem functioning.”<sup>9</sup>

9) Allen, McHughen, Barrows; *Impacts of Large-scale Solar Development on Regional Ecosystem Dynamics: Critical Research Gaps*, Desert Tortoise Council, 36th Annual Meeting and Symposium, Feb. 18-20, 2011, Las Vegas, NV, <http://tinyurl.com/4qg8uw8>

In addition, sulfur hexafluoride (SF<sub>6</sub>), used primarily as an electrical insulator in high voltage transmission of electricity, is the most potent of the six greenhouse gases regulated by

10) US EPA. SF6 Emission Reduction Partnership for Electric Power Systems: <http://tinyurl.com/46sjuz>

the EPA, with a global warming potential 23,900 times that of CO<sub>2</sub>. One pound of SF<sub>6</sub> is equivalent to eleven tons of CO<sub>2</sub>, nothing sequesters it and the chemical has a half-life in the atmosphere of 3,200 years.<sup>10</sup> The cost and effect of adding over 750 miles of new transmission infrastructure on SF<sub>6</sub> emissions must also be factored into carbon-balance equations.

11) Ibid.

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)<sup>11</sup> and the prospect of either short- and long-term reclamation remains purely speculative.

12) Field, Kimberleigh, Desert Tortoise Recovery Office, US Fish and Wildlife Service, Reno, NV, *Minimizing Risks When Translocating Desert Tortoises*, DTC Annual Meeting *op.cit.*

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 CO<sub>2</sub> reduction, evocation of categorical exclusions or other environmental waivers is arbitrary and unwarranted.

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.<sup>12</sup> Inadequately assessed and mitigated impacts from developing large swathes of desert are highly likely to undermine vital conservation and recovery efforts.<sup>13</sup>

13) Belenky, Lisa, *Fast-Tracking the Death by a of Thousand Cuts: How Sprawling Industrial Renewable Energy Development in the Desert is Undermining Conservation of the Desert Tortoise*, DTC Annual Meeting *op.cit.*

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.

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*Soil disturbance from large-scale solar development may disrupt Pleistocene-era caliche deposits that will release carbon to the atmosphere when exposed to the elements.*

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The prospects for the species survival, upon which “takings” permits are based, are likely overly optimistic. 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.

There is a broad misconception among the public (and to some extent among scientists and land managers), that scientists have completed the floristic inventory of the California desert, and that the remaining hotbeds for botanical discovery are limited to places like Indonesia and the Brazilian Amazon. Yet the California desert is, in fact, one of the remaining floristic frontiers in the United States. Using the trends from the past 50 years and extrapolating forward in time, we 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, we are likely to incur extinctions, and many will be species we never had the opportunity to discover and name.<sup>14</sup>

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 on six of the nine projects permitted by DOI to date.

### Public risk, private gain

Adding to the public burden are government cash grants to private, for-profit consortiums of up to 30 percent of a project’s total cost. Much of the momentum behind fast tracking was to meet the December 21, 2010 deadline for solar projects to qualify for American Recovery and Reinvestment Act (ARRA) funding. Under industry pressure, Congress is considering extending recovery funds for solar development.

ARRA funds have also been allocated for loan guarantees – that is, loans by US taxpayers through the Treasury Department, guaranteed by taxpayers through the Department of Energy. Two have been issued so far – \$1.37 billion to BrightSource for three plants in the Mojave, and \$1.45 billion to Abengoa for a plant on private land in Arizona. Solar Millennium is seeking a \$1.9 billion loan/guarantee for its projects in Blythe.

The President’s proposed budget also includes \$73 million to review and permit renewable energy projects on federal lands. In addition to these generous federal subsidies, states have waived millions of dollars in permit-processing fees for private utility-scale solar developers, with no provision for reimbursement.<sup>15</sup>

14) André, James; director, University of California Granite Mountains Desert Research Center. Email communication to Solar Done Right, February 17, 2011.

15) Jessica Cejnar, “County could establish position on green energy projects,” *Desert Dispatch*, April 2010: <http://tinyurl.com/y3wm4vz>



The Department of Interior has set as its goal “to permit at least 9,000 megawatts of new solar, wind, and geothermal electricity generation capacity on DOI-managed lands by the end of 2011.” Reaching this goal before the end of the year would require fast tracking of an additional 5,800 MW on more than 70,000 acres. Whether or not there are more fast-track proposals, it is clear that the Administration is strongly committed to the current, expedited policy.

### Staying the wrong course

Six of the nine fast-tracked projects are currently under litigation in response to inadequate, expedited reviews and potentially unwarranted approvals. In addition, some fast tracked projects depend on approvals of new long-distance transmission lines that are, themselves, under litigation. Rather than expediting solar energy generation, the “fast track” process has complicated and delayed our country’s progress on renewable energy. Agency deference to entrenched, old energy interests and business models have created policy mire that could be decades or longer to resolve before these projects ever go online.

In an October 2010 conference call to which environmental representatives were invited, Secretary Salazar expressed ambivalence regarding the previous fast-tracked projects, admitting that the “process had not been perfect.” The Secretary rationalized project approval on the basis that there had been no renewable energy program before he came in. He alluded to setting aside 1,000 square miles (640,000 acres) for solar – about the amount of land in the Solar Study Areas mapped out prior to issuance of the Draft PEIS.

We expected the problems identified in the course of the fast-track process to be remedied through the Solar PEIS, which DOI and DOE began in 2008, to “establish environmental policies and mitigation strategies (e.g., best management practices and siting criteria) related to solar energy development.” Maps of the solar study areas (SSAs), encompassing 676,000 acres, were offered for public review.

Late in 2010, as the release of the draft PEIS approached in the wake of the Secretary’s approval of several fast-track projects, we looked ahead to the PEIS for what we hoped would be a more rational and acutely focused analysis. This would in turn result in a legally and biologically defensible program. It was widely assumed, and regularly reinforced through statements from Interior, that the PEIS would begin with the 676,000 acres of SSAs and work from there to narrow appropriate lands for solar development, in the six states.



Thus, the public was unprepared for the choice of 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.

The Preferred Alternative is directly counter to the intent of the PEIS, which was to introduce some limits and predictability on how development of solar on public lands was to proceed. Caving into industry demands,<sup>16</sup> Interior has essentially said, “We do not wish to establish any meaningful limits on what is available to industry.”

16) Paul, Hastings, Janofsky & Walker, LLP, Comments of Large-scale Solar Association, the Solar Energy Industry Association, and the Center for Energy Efficiency and Renewable Technologies, Solar Energy PEIS Scoping letter submitted to BLM, Sept. 14 2009.



**Intact creosote-yucca habitat in the Ivanpah Valley.**

Chris Clarke photo

**Inset: Interior Secretary Ken Salazar speaks at the groundbreaking ceremonies for the Ivanpah Solar Electric Generation System**

Interior Department photo



## Applicable federal orders and inapplicable “mandates”

### The myth of the mandate

By pledging to put a “bull’s-eye” on public land for solar development and calling on Congress to make a long-term commitment to billions of dollars in public loan guarantees and grants to large-scale solar developers, Interior Department Secretary Salazar is in keeping with a time-honored tradition of offering up federal land as a dumping ground for yet another single-use, environmentally damaging form of energy exploitation.

Much of the drive behind solar development on public lands has been predicated on what is often referred to as a “mandate” in the 2005 Energy Policy Act (PL 109-58). Policymakers, agencies, industry, the press, and environmentalists all make reference to it. Yet the short provision regarding renewable energy on public lands in the legislation (Section 211), establishes an aspiration, not a mandate:

*“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-hydro-power renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity.”<sup>17</sup>*

17) PL 109-58, Section 211.

A Sense of Congress resolution has no force of law. The fact that this provision does not establish a mandate does not render it irrelevant, but it does mean that the Secretary of the Interior is not required to promote and sign off on permitting for utility-scale solar power plants. To do so is a policy choice, not a legally binding Congressional mandate.

Amended Federal Order 3285A1, issued by Interior Secretary Ken Salazar on February 22, 2010, is also cited as the basis for using public lands for solar development. The Order takes its authority from the Energy Policy Act of 2005 (Section 3) and therefore also constitutes a DOI policy choice, rather than a legally binding Order. 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... [Emphasis added].” The Order clearly states that the department should pursue solar leasing “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

**An ancient Galleta grass meadow in Southern California’s Colorado Desert, habitat for the flat-tailed horned lizard (inset), both of which are threatened by solar and other renewable energy development.**

Inset: Basin and Range Watch photo  
Meadow: Chris Clarke photo

resources” while implementing large scale “environmentally responsible” solar development, cannot be met through any of the alternatives being analyzed in the PEIS.

When considering the big picture of renewable energy development, technology and market trends, we believe that the discretionary targeting of intact public lands for industrial solar development is a grave mistake in need of reversal.



## Scope, purpose, need and alternatives

### Narrow, industry-driven alternatives

The National Environmental Policy Act (NEPA) requires agencies to “[r]igorously explore and objectively evaluate all reasonable alternatives.” 40 C.F.R. § 1502.14. The courts have found that “The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.” And that the “touchstone for our inquiry is whether an EIS’s selection and discussion of alternatives fosters informed decision-making and informed public participation.”

As currently defined, the BLM’s scope to analyze “use of multiple solar energy technologies at utility-scale over the next 20 years on lands within six southwestern states,” and DPEIS purpose and need, “to respond to the high interest in siting utility-scale solar energy development on public lands,” reflect the priorities of the solar industry to gain maximum access to public lands for industrial-scale development,<sup>18</sup> rather than the public interest in identifying the wisest approach to renewable energy development that preserves the long-term value of public lands.

According to the BLM NEPA Handbook H-1790-1 (Section 6.2) and reiterated in Instructional Memorandum No. 2011-059, “The purpose and need statement for an externally generated action must describe the BLM purpose and need, **not an applicant’s interests and objectives or external proponent’s purpose and need** (40 CFR 1502.13) (emphasis added), but rather “the problem or opportunity to which the BLM is responding and what the BLM hopes to accomplish by the action.”<sup>19</sup>

The foregone conclusion of all of the alternatives analyzed in the DPEIS is the sacrifice of huge swaths of public lands for another wave of energy exploitation. The DPEIS fails to consider whether siting large-scale solar on public lands is the highest and best use of those lands, nor does it explore alternatives to public lands solar.

Siting industrial-scale solar power plants on high-value, intact public lands has come under increasing scrutiny as the public becomes aware of viable alternatives such as large-scale solar “roof-top” PV in the built environment, or siting solar development on the nation’s millions of acres of disturbed, degraded and contaminated lands.

18) Paul, Hastings, Janofsky & Walker, *op. cit.*

19) US Department of Interior, BLM, Instructional Memorandum No. 2011-059, National Environmental Policy Act Compliance for Utility-Scale Renewable Energy Right-of-Way Authorizations, Expires: 09-30/2012.

Distributed generation

While the DPEIS 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.

The DPEIS conclusion that only 23 percent of required of required electricity supplies could be met with roof-top PV systems is refuted by numerous studies. For example, a 2007 Navigant study prepared for the California Energy Commission (CEC) estimated the combined solar PV capacity potential of residential and commercial rooftops in California to be 50,255 megawatts in 2010 and 67,889 megawatts in 2016.<sup>20</sup>

A 2009 Black & Veatch and Energy and Environmental Economics, Inc. (E3) report to the CPUC, found 11,543 megawatts of large (greater than 1/3 acre) urban rooftop capacity and 27,000 megawatts of ground-mounted capacity near existing substations.<sup>21</sup>

A June 2010 update of the study found that California has a capacity of 55,000 megawatts of decentralized solar PV

(over 100,000 GWh/year).<sup>22</sup> This is more than enough to meet the estimated 40,000 to 56,000 GWh/year net short in the state. The potential for DG goes well beyond the numbers cited in these studies that only account for the most accessible commercial sites.

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*Five years ago, solar PV and concentrated solar power were comparable in price, but solar PV is now indisputably cheaper than concentrated solar power.*

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It is common knowledge that solar PV prices have fallen dramatically in the past two years. In a recent filing to the state’s PUC, Southern California Edison asked for approval of 20 solar PV projects worth 250 MW – all of which are expected to generation 567 gigawatt-hours of electricity for less than the price of natural gas.<sup>23</sup> Five years ago, solar PV and concentrated solar power were comparable in price, but solar PV is now indisputably cheaper than concentrated solar power.<sup>24</sup>

Solar PV with battery storage has a lower levelized cost than concentrating solar with storage,<sup>25</sup> and many small installations spread widely over a larger geographic area, are far less vulnerable than large central-station solar generation that can be entirely shut down by a single cloud.

Advocates of utility-scale solar commonly omit from their calculations avoided costs of new transmission, and the 7.5–15 percent losses from moving solar-generated electricity hun-

20) Navigant Consulting, CEC, California Rooftop PV Resource Assessment and Growth Potential by County, Sept. 2007 <http://tinyurl.com/4glyzs4>

21) Black & Veatch, Summary of PV Potential Assessment in RETI and the 33% Implementation Analysis, Dec. 2009: <http://tinyurl.com/45n2j7x>.

22) Ryan Pletka, Black & Veatch, LTPP Solar PV Performance and Cost Estimates, prepared for CPUC as input to Long-Term Procurement Proceeding, June 18, 2010, slide 37: <http://tinyurl.com/4vg3zum>

23) Stephen Lacey, “Solar PV Becoming Cheaper than Gas in California?,” Renewable Energy World, Feb. 8, 2011, <http://tinyurl.com/4nhdx9q>

24) John Farrell, “Busting 4 myths about solar PV vs. concentrating solar,” Grist, Feb. 17, 2011, <http://tinyurl.com/4cprzhl>

25) Ibid.

dreds of miles to urban demand centers when comparing the cost of centralized vs. distributed solar generation.

In cloudy Germany, 8,000 MW of distributed PV were installed in 2010 alone,<sup>26</sup> more than 80 percent of it on rooftops.

A strategy focused primarily on distributed PV would be the most cost-effective approach to rapidly expanding solar power production in the United States. Germany has demonstrated that a spectacularly high, distributed PV installation rate is sustainable when an appropriate contract structure, the feed-in tariff, is utilized.

Approximately 17,000 megawatts of PV were installed worldwide by the end of 2009. Only 664 megawatts of the global total solar was concentrating solar thermal. Ironically, most of this solar thermal capacity was built in California in the 1980s and early 1990s.<sup>27</sup>

In his recent article “Federal Government Betting on the Wrong Solar ‘Horse,’” engineer and PV expert Bill Powers points out:

*The United States is wasting billions of dollars of American Recovery and Reinvestment Act (ARRA) cash grants and loan guarantees on very large, high-cost, high-environmental-impact, transmission-dependent desert solar thermal power plants that will be obsolete before they generate a single kilowatt-hour of electricity...*

*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....*

*...The SVS proposes that half of the nation’s solar power will come from solar thermal installations, based on a low and unsupported cost-of-energy forecast for solar thermal plants. The SVS also presumes that the Southwest will be the hub from which this solar power is generated and transmitted to other parts of the country, while estimating an almost trivial transmission expense to make this happen.*

*...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.<sup>28</sup>*

**26)** Kirshbaum, Erik, “Germany to add record 8 GW of solar power in 2010,” Reuters, Dec. 6, 2010, <http://tinyurl.com/4fwt3ub>

**27)** Powers, Bill. “Federal government betting on the wrong solar horse,” *Natural Gas & Electricity Journal*, Dec. 2010: <http://tinyurl.com/6c8uzwz>

**28)** Ibid.

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

29) Powers, Bill, and Bowers, Sheila; Solar Done Right. “Distributed Solar PV – Why It Should Be The Centerpiece of US. Solar Energy Policy,” <http://tinyurl.com/49n3vxm>

30) Haugen, Dan, “Why Isn’t the U.S. Embracing Feed-in Tariffs?,” *Solve Climate News*, March 24, 2009, <http://tinyurl.com/4qazjwf>

31) Philips, Matthew. *Newsweek*, Taking a Dim View of Solar Energy, Who could possibly be against homeowners using solar panels to power their homes? Utility Companies, August 25, 2009. <http://tinyurl.com/4uj33mb>

32) Scoping letter from EPA Region IX, Sept. 8, 2009, signed Ann McPherson, Environmental Review Office.

33) <http://tinyurl.com/4gcm222>

34) <http://tinyurl.com/6xqumcs>. Technical potential is defined “without consideration of cost or practical feasibility.” Given true financial and environmental costs of the current policy led by the Interior just to site 10,000 MW, we believe it is credible to use the EPA’s optimistic estimate for comparison purposes.

environment that has suitable space for distributed generation. When all costs are factored in – including new transmission infrastructure and transmission line losses – local, distributed solar PV is comparable in efficiency, faster to bring online, and more cost-effective than remote utility-scale solar thermal power or remote utility-scale PV plants.<sup>29</sup>

Local installations such as rooftop or parking lot solar PV reduce peak load at the source of demand and thus reduce or eliminate the need for additional conventional generation and transmission infrastructure. Yet, because investor-owned utilities are guaranteed a high rate of return for transmission and new generation infrastructure, they oppose large-scale deployment of rooftop solar<sup>30</sup> and thus work to perpetrate the myths surrounding point-of-use solar.<sup>31</sup>

### Environmental Protection Agency – RE-Powering America

The Environmental Protection Agency (EPA), which is obligated to review all environmental impact

statements, stated strongly in its scoping comments on the PEIS that the BLM should include a DG alternative in its analysis. In addition, 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.”<sup>32</sup>

The EPA’s Office of Solid Waste and Emergency Response has been identifying abandoned mine lands, brownfields, Resource Conservation and Recover (RCRA) sites, and federal and non-federal Superfund sites that may be suitable for solar and other non-fossil-fuel energy projects.<sup>33</sup>

In its original scoping letter on the Programmatic EIS, EPA identified hundreds of thousands of acres of contaminated sites around the country. 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.<sup>34</sup>

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*EPA identified hundreds of thousands of acres of contaminated sites around the country with a technical potential of 920,000 MW of solar generation and strongly encouraged BLM and DOE to seek alternatives to siting solar developments on intact public lands.*

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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.<sup>35</sup>

In its Environmental 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.<sup>36</sup>

Westland's Solar Park in California's Central Valley includes approximately 30,000 acres of disturbed land targeted for renewable energy development within the Westland's 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 GW of solar power generation.<sup>37</sup>

None of the examples above offers the entire solution, but they do demonstrate the lack of imagination and innovation that is currently guiding site selection. This primitive approach – using public land as the “easy call” for siting renewable energy – is not necessary. There are alternative for siting both large- and small-scale renewables.

### Failure to take a “hard look”

Billions have been invested in cash grant and loan guarantees to prop up proposals using 1980s- and 1990s-era technologies in remote, intact desert landscapes, when a push for widespread deployment of DG on pavement and rooftops would serve the public interest far better.

Thus we have an exploitive, outmoded approach to siting mired in 19th Century attitudes toward public land, coupled with financially- and environmentally-subsidized, outmoded technology that will fail to achieve a responsible energy future.

There is vast potential to get outmoded and environmentally damaging solar off public lands by prioritizing distributed generation from solar PV installations in the built environment.

The purpose and need for the PEIS fails to take a hard look at distributed generation and siting alternatives that “minimize adverse impacts or enhance the quality of the human environment” in order to inform decision-makers and the public, as required by NEPA.

Instructional Memorandum No. 2011-059<sup>38</sup> issued by the Director of the BLM acknowledges that in limited circumstances the agency may choose to evaluate a non-federal land

35) California Desert & 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*, Dec. 22, 2010

36) <http://tinyurl.com/685oo7z>

37) Woody, Todd, “Recycling land for green energy ideas,” *New York Times*, August 10, 2010, <http://tinyurl.com/29kga5s> and <http://tinyurl.com/4c646sx>

38) Ibid.

alternative or different technology alternative raised through scoping, “to the extent necessary to support a decision regarding the pending application.” The BLM’s dismissive stance regarding alternatives to its own narrow proposals, however, suggests that this would be used exclusively to point up the (false) superiority of the public-land, remote, concentrated solar projects it favors. To comply with NEPA, the BLM must analyze these sites and technologies as the legitimate alternatives they are.

The DC Circuit Court of Appeals has found an EIS inadequate for failing to consider eliminating oil import quotas as an alternative to the sale of oil leases on the Outer Continental Shelf, even though the alternative was outside the jurisdiction of Interior. No PEIS was prepared in that instance, but here there is an even stronger case to consider broader alternatives, as a PEIS is meant to address broader policy decisions rather than a specific proposed action.

As the Council on Environmental Quality has stated,

*“Section 1502.14 [of the NEPA regulations] requires the EIS to 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.”*

And,

*“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 1506.2(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.** Section 1500.1(a)[emphasis added].”<sup>39</sup>*

39) <http://tinyurl.com/4kdtcvf>

## Conclusion

In addition to turning to degraded, contaminated sites, there is vast potential to get outmoded, environmentally damaging solar off public lands in the alternative of distributed generation through solar PV installations in the built environment.

The PEIS dismisses alternatives such as distributed generation, restricting solar development to populated areas, or conservation and demand-side management, on the basis of defining the purpose and need as “[responding] in a more efficient and effective manner to the high interest in siting utility-scale solar energy development on public lands.” This, in turn, the agency relates to “the requirements for facilitating solar energy development on BLM-administered lands established by the Energy Policy Act...”

This approach renders the Draft Solar PEIS fundamentally flawed. The DOI, DOE and BLM are required to consider a far broader range of alternatives. While the Energy Policy Act – upon which Interior leans – expressed Congress’ “sense” that Interior “should seek to have approved” a stated amount of non-hydropower renewable energy on public land, it did not establish a mandate. Interior is not required to establish this footprint on public lands, and in light of the evidence regarding the environmental damage it would cause, has the discretion to, and must, change course.