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February 23, 2015

California Energy Commission
Dockets Office, MS-4
Docket No. 09-RENEW EO-01
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: DRECP NEPA/CEQA Comments

To Whom It May Concern:

I strongly support the County of San Bernardino's position letter (incorporated herein by this reference) in which they recommend the elimination of the DFA's in the Apple Valley, unincorporated Apple Valley, Phelan (south of SR 18 between US 395 and the LA County line), Stoddard Valley, Helendale, Lucerne Valley, Johnson Valley, Newberry Springs and along historically sensitive sections of California Highway 66, as well as the recommendation the DRECP consider "in lieu" DFA designations along the "395 corridor" and SR 58.

Further, I wish to reiterate the points made in the Basin and Range Watch's comment letter dated January 30 as well as the joint letter by the Alliance for Desert Preservation and the Mojave Communities Conservation Collaborative dated February 20 (incorporated herein by reference).

If this plan hopes to succeed, it must abandon its single-focused approach. The way to achieve successful renewable energy generation does not have to mean the ruination of our rural communities, our desert wild lands or wildlife habitats. Rather, the answer lies in a much less destructive solution: an alternative that includes point of use energy generation (rooftop) and embraces energy efficiency measures of all types.

Failure to consider a detailed analysis of a viable cost-effective and less harmful alternative to those listed in the existing draft DRECP appears to violate both NEPA and CEQA (federal and state environmental laws). The DRECP's REAT must make the legally (and morally) responsible decision to remedy this potential violation. This should be done by including a Point of Use/Energy Efficiency Alternative in the next draft of the DRECP.

Large solar and windmill projects are not "green". What sense does it make to sacrifice nature in the name of saving it? As proposed the draft DRECP, would fast-track these projects, allowing the take of endangered species, causing the destruction of natural habitat and undisturbed desert land in the process. Renewable energy that encompasses such damage, endangers wildlife, uses gross amounts of water in a drought-ridden desert, disturbs native carbon-sequestering plant life and consumes huge amounts of fossil fuels to keep these "green" projects operating ***IS NOT*** environmentally preferable. We are just beginning to see a glimpse of the destructive results of Ivanpah. What the real long-term impacts will be; no one knows. At first this project was one of the most-touted renewable energy advocates success stories. Now, it is a poster-child for what should not be permitted in ANY of our desert lands.

The May 21st, 2014 article on the Invanpah Solar plant by Benjamin Zycher (attached hereto and incorporated by reference) states; "Then there is the seldom-discussed issue of the natural-gas backup units for Ivanpah, used to warm the turbines in the early morning, to maintain turbine temperatures at night, and to back up the sola generators when clouds interfere with sunlight. Originally envisioned to operate one hour per day, the plant operators asked for regulatory permission to increase to about 4.5 hours per day"......Further observations in this article include biological impacts; "A biological assessment of the project in 2009 did not mention such possible impacts; the only discussion of birdlife centered on the threat posed by ravens to desert tortoises. But it turns out that insects are attracted to the glowing light of the solar towers, followed by smaller birds seeking to feed on the insects, followed in turn by larger predator birds. As the birds fly into the focal field of mirrors (the solar flux) – estimated at approximately 800 – 1000 degrees F – many are burned, the focus of a recent **"confidential"** report from the U.S. Fish and Wildlife Service. (Similar data reports from the FWS on the birds killed by the Deepwater Horizon oil spill were not confidential. Amusingly the FWS report notes that "despite repeated requests, we have been unsuccessful in obtaining technical data relating to the temperature associated with the solar flux at the Ivanpah facility." Apparently the politics of renewable power subsidies make confidentiality a multidimensional phenomenon."

Why is an extremely aggressive and destructive remote-energy-generation plan being forced upon us? Why not create a firm plan to improve efficiency capacity, shade our urban sprawl with solar PV, and install micro-grids where communities produce their own power and build their own local seat of electrical clout? By sensibly implementing appropriate technology and responsible conservation we can preserve our rural communities and protect our natural habitat for now and seven generations from now. I recommend we exhaust every effort to implement the most innovative and efficient technology available. In doing so, we *can generate **more** energy with **less** disturbance!*

Sign me; concerned, long-term, hard-working, tax-paying home-owner and high desert resident,

Dean E. Steely

American Enterprise Institute

Benjamin Zycher

May 21, 2014 | The American

California's New Solar Plant: Burning Up Taxpayer Money, Land, and Wildlife

Politics and Public Opinion, Public Economics, Technology and Innovation

While the federal government receives net payments for electricity-related oil and gas production on federal land, the net subsidy for the new Ivanpah solar plant is almost 300 times greater.

The Ivanpah Solar Electric Generating System in the Southern California Mojave desert began operations in February, and it is huge. How huge? Let us count the ways:

Huge costs. The Ivanpah capital cost is $2.2 billion for 392 megawatts (MW) of gross generation capacity (potential power output per hour). (That 392 MW is a number not comparable to 392 MW of, say, gas-fired capacity, because of a sharply lower "capacity factor," discussed below.) Accordingly, the nominal capital cost per kilowatt (kW, one one-thousandth of a MW) of capacity for Ivanpah is about $5600, a figure that ignores some costs that are important but hidden. In comparison, the Energy Information Administration publishes estimates of the capacity costs per kW for coal, combined-cycle natural gas, nuclear, and on-shore wind capacity: respectively about $2700, $885, $4800, and $2075. For solar thermal plants in general, the EIA estimate is about $4750. (Bear in mind that these figures are for capacity costs only; they exclude fuel, operations and maintenance, and other costs.) The per-kW capacity cost of Ivanpah is well over twice that of wind power, which cannot compete economically without the federal production tax credit, guaranteed market shares, and other subsidies.[1]

Lest you suspect that this unflattering comparison suffers from some sort of frontloading bias or the like, consider the EIA estimates of capacity costs per megawatt-hour (mWh) of power generation on a "levelized" basis (smoothed over the expected lives of the facilities): about $195 for solar thermal, $60 for conventional coal, $15 for natural gas, and $71 for nuclear. The EIA estimate for on-shore wind power is about $64, again an implausible figure. That the estimate for solar thermal facilities is three times that for wind is telling given that wind power is not competitive.

We can derive our own estimate of capacity costs per mWh for Ivanpah from some of the project details. The 392 MW gross capacity figure includes the power needed to run the plant. Net capacity for Ivanpah is 377 MW, which means that the capacity cost for deliverable power is about $5800 per kW. The Ivanpah capacity factor — essentially, the ratio of actual power output to the theoretical maximum production possible over the course of a year — is asserted by proponents to be 29.4 percent, a substantial improvement (largely because of favorable sunlight conditions at the Mojave Desert site) over most solar thermal facilities, estimated by EIA to have average capacity factors of only 20 percent. (The EIA estimate for uncompetitive on-shore wind farms is 34 percent. Capacity factors for coal, gas, and nuclear plants are 85 percent, 87 percent, and 90 percent, respectively.) Let us assume a 30 percent capacity factor for Ivanpah, so that the plant would produce power for 2628 hours per year. That is a total of 990,756 mWh of net output per year, which we can round up to 1 million mWh. The plant is projected to have a 25-year life; let us assume a real interest rate of 5 percent. The $2.2 billion cost, amortized over 25 years at 5 percent, works out to an annual capital (capacity) cost of about $154.3 million. For the 1 million mWh of net output, that is a capacity cost of about $154 per mWh, lower than the EIA estimate of $195 noted above for solar thermal plants generally.

> The project received a $1.6 billion loan guarantee from the U.S. Department of Energy.

In terms of total costs per mWh, we must add annual fixed costs for operations and maintenance. (I ignore here the estimated $446 million needed for transmission upgrades.) The EIA estimates those fixed operations and maintenance costs for solar thermal plants at about $67,000 per MW, or about $26.3 million per year if that estimate is applied to Ivanpah.[2] Spread over the 1 million mWh of net output, fixed operations and maintenance is about $26 per mWh; added to the per-mWh capacity cost ($154), total fixed costs for Ivanpah work out to about $180 per mWh. This is lower than the EIA estimate of about $237 per mWh (excluding transmission costs of about $6 per mWh) for solar thermal plants generally on a levelized basis, presumably because of the higher capacity factor for Ivanpah.[3] But the EIA estimate of levelized costs for, say, conventional gas-fired power generation is about $68 per mWh. With Ivanpah electricity almost three times as expensive as conventional gas-fired power, supporters offer several justifications, which are addressed below.

The EIA estimates of total system (that is, including variable and other costs) levelized costs per mWh for solar thermal, conventional coal, natural gas, nuclear, and on-shore wind generation are, respectively: $243, $96, $66, $96, and $80. (Again: The wind estimate is far too low.) For coal and gas facilities in particular, these estimates are driven in substantial part by assumptions about future fuel costs, which obviously can be proven incorrect over time. But given the massive expansion in natural gas supplies attendant upon the technological advances inherent in horizontal drilling and hydraulic fracturing, it is difficult to believe that the recent sharp decline in gas prices will fail to be a feature of the energy market for the foreseeable future, except to the limited extent that market demand adjusts to increased gas supplies over time, thus raising prices slightly. True enough: Renewable power may enjoy future technological advances, but technological improvement is likely to characterize all electricity production. Accordingly, such future improvements in renewable generation do not necessarily imply increases in renewables' competitiveness, particularly given the diffused energy content of sunlight and wind flows, a reality impossible to change.

Huge subsidies. The project received a $1.6 billion loan guarantee from the U.S. Department of Energy. (The deep administrative weaknesses of the DOE loan program are the subject of a new Government Accountability Office report.) It is obvious that the project would not have been built without this subsidy, as solar power (like wind power) cannot compete with conventional electricity. But the loan guarantee is only the beginning. Because Ivanpah is a solar facility, the loan guarantee is administered under the section 1705 loan program. This means that

> Ivanpah sits on 3471 acres of Mojave desert — 'fragile desert' as the environmental left puts it in most other contexts — a

massive footprint.

the credit subsidy cost — "the expected long-term liability to the Federal Government in issuing the loan guarantee" — is paid not by the owners of the project, but instead by a congressional appropriation, that is, the taxpayers. This subsidy is not reported by the Energy Department on an individual project basis; but as a crude first approximation, it is about 10 percent of the underlying guarantee. Accordingly, for Ivanpah it is very roughly $160 million, or $6.4 million per year if evenly divided in a naïve fashion over the 25-year life of the project. If we do the correct calculation of the yearly subsidy — the annual payments for 25 years that have a present value of $160 million at an assumed interest rate of 5 percent — it is about $11.4 million per year. Note that the credit subsidy cost as computed by the federal government understates the cost of the subsidy both to the taxpayers and, more importantly, to the economy: Greater federal debt obligations must increase the interest rate that the federal government pays, whether by an amount small or large, and the marginal excess burden ("deadweight loss") created by the tax system means that the private sector shrinks by more than a given increase in federal spending.

Because Ivanpah began operations before 2016, it qualifies for the 30 percent investment tax credit as an optional replacement for the production tax credit of $11 per mWh, thus increasing the present value of the subsidy. This makes the subsidy independent of the actual amount of power produced. Ivanpah qualifies as well for accelerated depreciation (an assumed five-year life) and a depreciation "bonus" of 50 percent in the first year.

Precisely what are the taxpayers getting in return for this? The usual arguments in favor of subsidies for renewable energy are deeply flawed, as are the rationales offered in support of the subsidies for Ivanpah specifically, a discussion of which is offered below. In terms of direct payments to the federal

The net effect on tax revenues is more likely to be negative government, the annual rental fee for Ivanpah (which is sited on federal land in San Bernardino County) is $125.56 per acre plus $6570 per MW of capacity. For 3471 acres of land ($435,819) and 392 MW of capacity ($2.6 million), this works out to a bit more than $3 million per year, only about 27 percent of the $11.4 million annual taxpayer cost of the credit subsidy alone.

rather than positive.

Let us compare the fees paid by Ivanpah in comparison with the often-criticized rents and royalties paid by oil and gas producers operating on federal lands, in the context of federal financial support for various forms of electricity production. For Ivanpah, annual output of 1 million mWh is about 3.4 trillion btu of energy. Accordingly, the annual Ivanpah fee — a bit more than $3 million — works out to roughly $0.88 per million btu.

Under federal regulations, rental fees for oil and gas production on federal lands are $1.50 per acre per year for the initial five years of a lease, and $2 per acre thereafter. The royalty rate is 12.5 percent of the value of the oil and gas production. The number of oil- and gas-producing acres on federal land in fiscal year 2013 was about 12.6 million, so that the rental fee was roughly $25 million, an amount dwarfed by royalty payments. Oil and gas production on federal land in 2012 was about 595 million barrels and about 4.3 trillion cubic feet, respectively. Federal royalties from this oil and gas production were about $9.7 billion in fiscal year 2012. The total energy content of 595 million barrels of oil and 4.3 trillion cubic feet of gas is about 7900 trillion btu. Accordingly, federal receipts for oil and gas production on federal lands was about $1.23 per million btu, or about 40 percent more than the per-btu fee paid by Ivanpah.

But that is not the end of the story. The larger question is the relative per-btu payment *net of subsidies* for Ivanpah in comparison with oil and gas producers operating on federal land. For U.S. oil and gas production used in electricity generation in 2010, the EIA estimates that there were $654 million in federal "electricity production subsidies and support," and that oil and gas accounted for 1030 billion kWh (about 3500 trillion btu) of net generation. Putting aside the question of how "subsidies and support" is defined, that works out to a production subsidy of about $0.19 per million btu of oil and gas production used in electricity generation. For solar power in the aggregate in 2010, federal subsidies and support was $968 million, while solar power production was 1 billion kWh, or about 3.4 trillion btu. Accordingly, the solar subsidy was about $285 per million btu. The following table summarizes these calculations under the (conservative) assumption that the federal subsidies per million btu for Ivanpah equal those for the solar industry as a whole.

Fees Paid and Subsidies Received for Electric Generation Energy Sources
(dollars per million btu)

	Fees Paid	Subsidies Received	Net Fee Paid
Ivanpah	0.88	285.00	(284.12)
Oil and Gas	1.23	0.19	1.04

The federal government receives net payments for electricity-related oil and gas production on federal land, while the net subsidy for Ivanpah is almost 300 times greater. Note again that there is widespread criticism, whether justified or not, of the rents and royalties paid by oil and gas producers operating on federal land. *A fortiori*, such criticisms should be directed at Ivanpah.

As an aside, the three Ivanpah production units will serve the California power market — two will supply power to Pacific Gas and Electric, and the third to Southern California Edison — and California is implementing a requirement that 33 percent of its electric power be "renewable" by 2020, a mandate that will impose a tax of about 27 percent on the state electricity market in real terms (that is, after adjusting for inflation), with a marginal rate increase of 13 percent, again in real terms, to be borne by the state's power consumers. Note that California already has among the highest retail power rates in the country, exceeded only by those in the New England states (except Maine), New York, Alaska, and Hawaii. The implicit tax imposed by any one renewable project such as Ivanpah is heavily a function of the negotiated contract prices (which are confidential for three years) and the subsidies bestowed on the project (although the subsidies shift rather than reduce the excess costs of renewable power). The federal subsidies mean that California is able to shift some part of the implicit tax onto taxpayers in other states. That this is largely hidden does not mean that it is not real; someone must bear these costs.

Huge Unadvertised Environmental Effects. Let us agree that beauty is in the eye of the beholder, but — seriously now — can anyone not tied financially to Ivanpah find this to be appealing visually? Ivanpah sits on 3471 acres of Mojave desert — "fragile desert" as the environmental Left puts it in most other contexts — a massive footprint that dwarfs those of conventional power generation facilities, in large part because of the unconcentrated energy content of sunlight. Consider the land required for a small modular nuclear reactor with generation capacity close to that of Ivanpah: about 38 acres. A 1600 MW coal facility (two 800-MW plants), including storage areas, transportation lines, and other ancillary facilities would require on the order of 800 acres. A 1000 MW gas plant would require on the order of 50 acres. A 1000 MW wind farm — the energy content of wind flows, like that of sunlight, is unconcentrated — would require an amount of land in the approximate range of 48,000-64,000 acres (that is, 75-100 square miles).

> Insects are attracted to the glowing light of the solar towers, followed by smaller birds seeking to feed on the insects, followed in turn by larger

This is unavoidable: Consider the basic energy and engineering parameters of Ivanpah. At the earth's surface, the average energy content of sunlight is about 150-400 watts per square meter, of which 20-30 percent is convertible to electricity.[4] (The claimed conversion ratio for Ivanpah is 28.72 percent.) Ivanpah uses 173,500 heliostats, each with two mirrors totaling 163 square feet, or about 15.14 square meters, which are controlled by computers for optimal orientation toward the sun. That technological factor combined with sunlight conditions at the Ivanpah site in the California Mojave desert suggests that a figure higher than 400 watts per square meter is appropriate; a reasonable first approximation is about 500-550 watts per square meter.[5] Accordingly, total solar receiving capacity at Ivanpah is about 1313-1445 million watts; the conversion efficiency of 28.72 percent yields a rough computation of electric generation capacity close to the official rated capacity of 392 MW. In short: Land use both massive and massively unappealing is a necessary feature of solar thermal facilities generally, and Ivanpah in particular.

predator birds.

Then there is the seldom-discussed issue of the natural-gas backup units for Ivanpah, used to warm the turbines in the early morning, to maintain turbine temperatures at night, and to back up the solar generators when clouds interfere with sunlight. Originally envisioned to operate one hour per day, the plant operators asked recently for regulatory permission to increase that to about 4.5 hours per day, on the basis of the following justification:

> [Ivanpah] is unique. For some aspects of operation, the only way to fully understand how the systems work has been through the experience of operating the powerplants. [The Ivanpah operators] first became aware of the need to increase annual [natural gas] use after the completion of construction and commencement of commercial operations, which began in December 2013. The experience gained during commercial operations indicates that more boiler steam would be needed than previously expected in order to operate the system efficiently and in a manner that protects plant equipment, and to maximize solar electricity generation.

This truly is fascinating. Put aside the increase in effluents attendant upon the greater gas consumption. Since Ivanpah "is unique," what other uncertainties may come to afflict all of the promises made during the approval process for the project? The actual output of power, perhaps, driven by uncertainties about the reliability of the heliostat system? In any event, the operators' earlier claim that the plant will prevent "400,000 tons of carbon emissions annually" (about which more below), however derived, no longer can be correct given the increase in natural gas consumption.

The beginning of operations at Ivanpah has yielded another surprise: deadly effects on insects and birdlife. A biological assessment of the project published in December 2009 did not mention such possible impacts; the only discussion of birdlife centered on the threat posed by ravens to desert tortoises. But it turns out that insects are attracted to the glowing light of the solar towers, followed by smaller birds seeking to feed on the insects, followed in turn by larger predator birds. As the birds fly into the focal field of the mirrors (the "solar flux") — estimated at approximately 800-1000 °F — many are burned, the focus of a recent "confidential" report from the U.S. Fish and Wildlife Service. (Similar data reports from the FWS on the birds killed by the Deepwater Horizon oil spill were not confidential. Amusingly, the FWS report notes that "despite repeated requests, we have been unsuccessful in obtaining technical data relating to the temperature associated with solar flux at the Ivanpah facility." Apparently, the politics of renewable power subsidies make confidentiality a multidimensional phenomenon.) On a gruesome note, smoke often emerges from insects and birds crossing the solar flux field at Ivanpah; these are called "streamers" by employees and observers at the facility. Personnel from the FWS Office of Legal Enforcement during a visit to Ivanpah "observed an average of one streamer event every two minutes."

> Future improvements in renewable generation do not necessarily imply increases in renewables' competitivene: particularly given the diffused energy content of sunlight and wind flows, a reality impossible to change.

Rationales Hugely Spurious. Unsurprisingly, the owners of Ivanpah believe that the costs and the subsidies and the environmental effects are justified by several purported benefits:

- *Jobs and wages*: Ivanpah will have employed about 2600 construction workers and support staff over three years, create about 90 permanent positions, and pay out about $650 million in wages over 30 years. These employment effects certainly are advantageous for the workers hired, but for the economy as a whole this employment is a cost: These workers are unavailable for employment elsewhere. Should you find that reasoning counterintuitive, imagine that a project were to use millions of tons of high-quality steel. That would be applauded by the steel producers and steel workers; but the resources, including labor, used to produce the steel would not be available elsewhere, the very definition of a cost. The same analysis applies to the labor employed at Ivanpah. Such costs usually are efficient when labor and other resources are allocated in light of market prices; but the subsidies necessary to make Ivanpah and similar projects viable mean that this labor utilization is not efficient.

- *State and local tax revenues*: Ivanpah "will generate $300 million in state and local tax revenues" over the life of the project. It is not clear whether that figure includes taxes paid on the labor income — if so, it would be a classic case of double-counting — but in any event the $300 million is not a gift from the owners of Ivanpah to local and state taxpayers. Presumably Ivanpah will consume public services — police and fire protection, etc. — so that the net effect of the project on the public purse, apart from the subsidies already discussed, is far from obvious. Since the project engenders inefficient resource use — that is why it requires subsidies for viability — it must make the economy smaller on net (with all the familiar adverse implications for ordinary people), and so the net effect on tax revenues is more likely to be negative rather than positive.

- *Carbon emissions*: Over the course of 30 years, "a total of 13.5 million tons of carbon emissions will have been avoided." Apart from the fact that "carbon" and "carbon dioxide" are not the same — the phrases "carbon" and "carbon pollution" are political propaganda — and apart from the reality that the derivation of the "13.5 million tons" over 30 years (I love the "point-five") is wholly obscure, let us put that figure in proper context. Global greenhouse gas emissions annually are about 35 billion tons; if held constant, that works out to more than a trillion tons over 30 years, of which the 13.5 million tons that Ivanpah purportedly will avoid constitute about one one-thousandth of 1 percent. Under any set of beliefs about the underlying climate science, the effect of that purported emissions reduction on global temperatures in the year 2100 would be effectively zero.

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Ivanpah is a monstrosity, the kind that only a marriage among Beltway politicians, crony capitalists, and environmental Leftists could engender. It is the classic illustration of the dismal reality of "renewable" energy, and thus serves a public purpose very different from those argued by its proponents: It helps to reveal the truth of modern environmentalism.

Benjamin Zycher is the John G. Searle scholar at the American Enterprise Institute.

FURTHER READING: Zycher also writes "Keystone XL: Sachs Strikes Back," "The Fact-free Opposition to Keystone XL," and "The Efficiency of a Carbon Tax: Broadly Accepted and Broadly Wrong." Vaclav Smil offers "Memories of Peak Oil" and "Germany's Energy Goals Backfire."

Footnotes

1. Note that the recent (2014) EIA "levelized" (smoothed over time) capacity cost estimate for wind power production (instead of per kW of capacity) — about $64 per megawatt-hour (mWh) — simply is implausible: Only four years ago (2010), the EIA estimate was $138 per mWh (both figures are in year 2012 dollars). Other than, perhaps, the politics of renewable electricity, what has changed that would yield a 54 percent reduction in wind capacity costs? It is simply impossible that technological advances or scale effects or any of the other usual rationales would explain this.

2. At a 5 percent discount rate, that 25-year stream of fixed operations and maintenance costs has a present value of $370.7 million, adding about 17 percent to the $2.2 billion capacity cost.

3. I ignore here transmission costs for Ivanpah. EIA assumes variable operations and maintenance for solar thermal plants to be zero, a parameter that cannot be correct for solar thermal plants generally or for Ivanpah in particular. Consider the 173,500 heliostats (each with two mirrors) at Ivanpah, which are rotated constantly to follow the sun and reflect sunlight onto three towers so as to heat water. Over 25 years it is inevitable that some of the rotation mechanisms will malfunction. There are costs for the chemicals used to maintain the proper water quality properties. There are costs for lubricating oils and for spare parts. The various pumps, valves, turbines, gears, and the like inevitably will need repairs, and there will be labor costs for such work. There will be recurring mechanical, electrical, instrumentation, and control equipment problems. An EIA analyst in an interview (April 29, 2014) argued that the assumed/estimated capacity factors incorporate such costs for solar and wind facilities. While experience with solar and wind facilities may yield better estimates over time, the EIA assumption that variable operations and maintenance costs are zero is a crude way to account for this parameter.

4. Solar energy at the top of the atmosphere is about 1360 watts per square meter; since few of the sun's rays are perpendicular to the earth, and because only half of the earth is illuminated at a given moment, the effective solar irradiance at the top of the atmosphere is one-fourth of that, or about 340 watts per square meter. Moreover, because of albedo effects (the portion of solar energy reflected back to space by clouds, deserts, ice, and other physical parameters), solar energy at the surface is reduced by about 30 percent. The average net effect of solar energy is about 240 watts per square meter.

5. Interview with staff experts at the National Renewable Energy Laboratory, May 8, 2014.

Photo by: Pacific Southwest Region / Flickr