Statement of:
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Renewable Energy Opportunities and Issues on Federal Lands: Review of Title II, Subtitle B – Geothermal Energy of EPACT 2005

Committee on Resources, Subcommittee on Energy and Mineral Resources

April 19, 2007

Mr. Chairman and members of the Subcommittee, I am Joshua Bar-Lev, Vice President for Regulatory Affairs, BrightSource Energy, a company located in California that seeks to develop utility scale solar energy projects. I am here to speak on behalf of the utility scale solar member companies of Solar Energy Industries Association (SEIA). SEIA is the national trade association of companies which supports the development of clean renewable solar energy. Neither BrightSource nor I are new to this subject.

BrightSource has the same management team as did a solar company that ceased operations in 1991, Luz International Ltd. Over 16 years ago, Luz built nine (9) utility scale solar energy plants in the California Mohave Desert that still are operating today and together produce 350 MW of electricity. That history informs my remarks and recommendations to this Subcommittee on what actions Congress might take to encourage utility scale solar energy.

First, some background. In order to use solar energy to produce commercial levels of power, a technology called Concentrated Solar Power (CSP) is used to reflect and focus solar energy onto an absorbing material. This absorbing material becomes quite hot and in the case of the use of a heat engine causes a gas to expand and drive a piston, or in the case of a steam turbine heats water to create steam to power a conventional steam turbine. Either CSP method creates electricity which is then transmitted to the customer over transmission lines. See U.S. Department of the Interior, Bureau of Land Management, Solar Energy Development Policy (IM 2007-097), and attachment defining solar energy systems. **Ex. 1.** (www.blm.gov/wo/st/en/info/newsroom/2007/april/NR0704_1.print.html)

There are a number of CSP companies in the market – each with a different technology. These technologies include: the use of parabolic mirrors to focus the sunlight against tubes that run up and down the field of mirrors; others use flat mirrors to reflect against a tower containing heat absorbing pipes; and others may use photovoltaics to concentrate the sun. Unlike direct use solar, each of the CSP technologies is built to generate large amounts of electricity that can be integrated into the utility system.

Typically, utility scale CSP systems need roughly a square mile (800 acres) of reflective mirrors and turbines to generate about 100MW of electricity. A 100MW facility serves a city of roughly 100,000 people. CSP plants are particularly well-suited to meet peak demand load in the West beginning in the late morning and then throughout the daylight hours. CSP plants typically use natural gas as back-up power for those times when the

cloud cover prevents the solar powered start-up and shut-down of the CSP plant. CSP plants are built to last 30 years and typically use very little water.

I invite the Committee to take a field trip to see these impressive, essentially carbon-free systems in operation. A CSP system is being completed near Boulder City, NV, another is underway in Arizona and a number are in operation in Spain. As I mentioned, I was personally involved in the construction of several CSP systems between 1984 and 1991 in California's Mohave Desert that continue in operation today – generating enough energy for 400,000 people. *See* http://www.blm.gov/wo/st/en/prog/energy/solar_energy.html for links to Mohave Desert projects.

These California projects, besides having personal meaning to me, are an instructive example to this Subcommittee about the consequences of failing to maintain consistent, supportive policies to encourage the development of alternative energy sources. The momentum that was encouraging the development, testing and increased economies of CSP technologies in the 1980's and 1990's was lost when the government reversed policy course for solar energy. It is my opinion that our nation squandered an opportunity to sustain the development of a clean, secure, and infinite source of energy.

The lessons from these early California CSP plants are several. First, during the years we built these projects, the federal and state governments had in place long-term tax policies that encouraged the development of utility scale solar projects.

Second, these long-term tax policies gave the industry stability and predictability. This allowed Luz to learn as we operated these solar plants, to find economies of scale, and to build, finance and sell projects at a progressively lower cost of production. By 1991, we were able to build our projects at almost 50% of the cost per kWh compared to our early projects in 1984. Luz believed that within a few years we would become competitive with the cost of fossil fuel power plants.

Third, once those supportive government policies ended, our capital intensive projects could not be financed and we had to cease operations. Since 1991, no utility scale solar power plant has been built in the United States until very recently. Favorable tax and government policies for alternative energy are once again encouraging development of CSP.

After being in the solar business and also working as a chief counsel at a utility, Pacific Gas and Electric Company, for many years, I can tell you confidently that with supportive near-term federal and state policies in place, large scale, and cost effective, competitive solar energy is within reach. That is the conclusion of many experts, including the Department of Energy (DOE), and is also the conclusion of the Western Governors Association (WGA) in their 2006 resolution supporting the Clean and Diversified Energy Committee (CDEAC) report. To assist the Subcommittee, I have attached the WGA recommendations of their Policy Resolution, 06-10, "Clean and Diversified Energy for the West", detailing near term renewable energy policy initiatives

as well as the executive summary of the CDEAC solar committee report. **Ex. 2** *See also* www.westgov.org/wga/initiatives/cdeac/index.htm for links to full reports.

I will come back to SEIA's policy recommendations to the Subcommittee in a moment, but let me start with an important basic foundation for the U.S. CSP industry – our unique national resource – plentiful, flat, non-environmentally sensitive desert land in the West that has high solar insolation, low cloud cover and is in proximity to gas and electric transmission lines, highways and urban load centers.

This CSP quality land is largely public land managed for multiple uses including energy production by the Department of the Interior, Bureau of Land Management (BLM). BLM reported that as of April 1, 2007 there are 43 solar applications pending in California, Arizona and Nevada with 34 in California alone. As recently as the end of 2004, there was no expressed interest in CSP development on BLM public lands. Enactment of California's renewable portfolio standard and favorable tax policies led to the filing of these BLM applications – most over the last eight months.

In 2003, BLM and the Department of Energy (DOE), National Renewable Energy Lab (NREL) issued a GIS-based report, "Assessing the Potential for Renewable Energy on Public Lands." *See* http://www.nrel.gov/docs/fy03osti/33530.pdf. More recently, in support of the WGA CDEAC initiative, NREL has mapped the best locations for solar energy on public lands in Arizona, California, Nevada, and New Mexico. The NREL report and GIS maps identify areas with 1 percent or less of slope with high levels of solar insolation for utility-grade CSP plants. I have attached the multi-state and California CSP maps prepared by NREL. **Ex. 3** (http://www.nrel.gov/csp/maps.html).

The NREL study "filtered out" unsuitable land that had too much slope (mountains), was too cloudy, too environmentally sensitive, in or near Wilderness, Parks or other unsuitable areas. The result will not surprise any of you from the West. The western United States has some of the best solar radiation areas in the entire world. Conservatively, there is enough land using today's utility scale technology to generate at least 7000GW of solar energy. This 7000GW of potential solar energy is about seven times the total United States demand capacity. To give you a sense of scale, California's peak demand capacity is 60GW.

California alone has at least 6000 square miles of ideal desert terrain for CSP. However, if we limit the development of CSP to high-potential solar areas that also have proximity to gas and electric transmission lines, we can conservatively estimate that we have ideal desert land for at least 200GW.

How do we bridge the cost gap to get utility scale solar energy to be competitive with conventional and other renewable fuels? Energy experts believe that a concerted effort to develop somewhere around 4GW (which represents about 10% of the expected growth in peak load for the western states) of CSP in the next decade will bring the cost down to competitive levels, through R&D, economies of scale and learning curve benefits. The

WGA study found that development of as little as 4GW will bring the cost of solar down to fewer than 10 cents a kWh, which is equivalent to $7 per MMBTU gas.

Production of 4GW of CSP energy will have major economic benefits - one study by Black and Veatch estimates that 4GW will produce a $22 billion increase in gross state product, including 13,000 construction jobs, 1,100 permanent jobs and $2 billion in state tax revenues. And this 4GW will conservatively displace almost 8 million tons of CO2, which is 7% of California's electric utility output of carbon.

What governmental policies will result in deployment of sufficient utility scale solar energy in the western United States in the next decade? I believe it's a combination of federal and state actions. I will focus first on federal actions and conclude with a brief mention of state initiatives.

RECOMMENDATIONS

Federal actions:

- Facilitate the use of federal public lands for CSP. Public lands are uniquely important for the development of CSP. Much of the best CSP solar is on public lands and these lands also provide the land area necessary for CSP facilities. First, the Secretaries of Interior and Energy should carry out the directive of EPACT 2005, § 201 to assess and update available **assessments of solar resources**. *See also* EPACT § 1833 (directing the preparation of a National Academy of Science (NAS) study of the renewable potential of public resources.) The agencies should be provided the budgetary resources to identify, in no more than six months, optimal sites for utility scale (CSP) solar energy. By optimal, I mean sites that are in proximity to electric and gas transmission lines, are sufficiently flat, not environmentally sensitive, and have a radiation level of at least 7 kWh per square meter. Although the NREL GIS report and maps mentioned above are a good start, more assessment work can and should be done to accelerate the development of CSP. For example, the NREL GIS maps must be integrated with the BLM land use planning GIS, which is not now the case.

- These identified optimal sites should be set aside as potential "**CSP solar parks**" of at least 10 square miles (enough for at least 1GW in each solar park). This designation would allow common infrastructure-- roads and transmission lines-- to be effectively consolidated and timely and cost-efficient planning and environmental permitting completed.

- BLM must be directed to expeditiously update their **land use plans** in these optimal areas to provide for the use of public lands for CSP projects and the development of CSP solar parks. BLM has recently identified the need to complete new or updated land use plans to include consideration of the NREL solar assessments of CSP potential areas. BLM has suggested that land use plan

amendments can be concurrently completed during the application process for a particular CSP project. **Ex. 1**, BLM IM 2007-097 at 2.

- We are concerned about BLM's suggested approach for land use plan amendments to allow for CSP development. First, conducting plan amendments as CSP projects are proposed would create significant delay for the development of solar power on public lands. These BLM plan amendments take at least 18 months and, in California, some planning processes have stretched as long as 10 years. This should be an unacceptable delay to those in Congress interested in accelerating the development of CSP. Second, this proposal places the considerable costs of preparing a plan amendment and the required National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) on the first CSP project proponent in the area. We do not believe this is the most efficient way to analyze the use of public lands for CSP nor is it appropriate to have the first applicant in line bear the cost for all other applicants to follow. We believe the development of public land solar is a larger public good that should be borne by the public as a whole. Accordingly, we request that Congress consider the use of a **Programmatic Environmental Impact Study (PEIS) for CSP** that would, in one action, amend all BLM land use plans in these optimal areas to provide for the development of CSP. We request that Congress fund the preparation of this PEIS. A PEIS was utilized by the BLM in amending land use plans to permit the development of wind energy on public lands in 2005. *See* http://windeis.anl.gov. A PEIS is being used by BLM and DOE to carry out the West-wide Transmission study in EPACT 2005 § 368. *See* http://corridreis.anl.gov. A CSP PEIS would be timelier, more cost-effective and would demonstrate the nation's support for alternative energy sources. Preparation of such a CSP PEIS should be given a time certain deadline of 18 months for completion.

- Congress should examine what other **federal procedures** could be made more efficient: including project-specific NEPA documents; Endangered Species Act consultations; National Historic Preservation Act cultural resource consultations; and related federal permitting procedures including BLM's processing of right of way permits for CSP projects. Today solar projects must go through a second round of project specific NEPA and environmental compliance after the NEPA conducted at the BLM plan level. This takes considerable time and we suggest that Congress consider how to expedite the permitting process so that CSP developers may take advantage of the tax incentives and the current window of opportunity. One process improvement we would suggest is that the proposed CSP PEIS for solar parks act as the environmental clearance process for such solar parks so that projects within the solar parks are deemed in compliance with all federal and state environmental laws and process. Alternatively, Congress could consider the use of a NEPA categorical exclusion for CSP projects within identified solar parks analyzed in the suggested CSP PEIS. Or, Congress could consider if project specific NEPA can be tiered to plan amendment NEPA

documents. State and federal agencies must be encouraged to work together more efficiently to permit CSP projects.

- **Right of way fees** charged by BLM for the rental of public lands for CSP projects or for the proposed CSP solar parks should be at the lowest cost for the use of public lands as an incentive to develop solar energy, rather than the highest rental cost. Today, Title V of the Federal Land Policy Management Act (43 U.S.C. § 1761) and BLM right of way regulations (43 C.F.R. § 2804) require "fair market value" for the rental of public land. *See also* **Ex. 1**, BLM IM 2007-096 at 2, 4-5. BLM solar policy currently directs that annual rent for CSP be established by BLM using appraised values for "commercial land or industrial land, as of the date of the appraisal." *Id*. at 4. Thus the rental for CSP is at the highest rental rate for the use of public land – a rate charged for coal-fired power plants or other industrial facilities. For example, in an existing Boulder City, NV example, the fair market value for a CSP facility amounts to $25,000 per acre and several millions of dollars per year in rent. We would ask Congress to direct a specific per acre rental fee for CSP that would be at a dollar amount to create an incentive for solar energy production from public lands. We would suggest that the CSP rental for public lands be closer to the assessed value of the land for livestock grazing rather than the value of the land for industrial facilities.

- The Departments of Energy and Interior should complete within 6 months the directive in EPACT 2005 § 368 to identify **transmission corridors** in the West with particular attention to transmission to the optimal solar areas identified by the BLM. In addition, the EPACT 2005 § 1221 study should expeditiously identify optimal solar areas where transmission constraints or congestion exist. The Departments of Energy and Interior should work together with state authorities and transmission operators to develop transmission facilities to access such solar areas. Using the authority in EPACT 2005 § 1221 the Federal Energy Regulatory Commission (FERC) should issue transmission construction permits to such areas. In the absence of expeditious transmission permitting and construction by local transmission authorities, the Secretary of Energy, acting through the geographically appropriate power marketing agency, should use its authority under EPACT §1222 to "design, develop, construct, operate, maintain or own" transmission lines to such optimal solar zones.

- FERC should facilitate **interconnections to utility scale solar** projects. Right now the FERC and state processes of queuing up and getting interconnections to the transmission grid is time-consuming and beset with bureaucratic delays. It now takes a solar project longer to connect to the transmission grid than it does to permit and construct the solar project. FERC should encourage transmission operators to determine if there is a batch of renewable projects in a given area and then support efforts to permit utilities to add the cost of such interconnection to rates.

- The federal **Investment Tax Credit (ITC) for solar** currently expires at the end of 2008. Congressmen Michael McNulty (D-NY) and David Camp (R-MI) have introduced the *Securing America's Energy Independence Act* (HR 550) an eight year extension of the ITC and, currently, the bill has over 50 cosponsors. It is imperative that, despite the challenge of the federal budget process, the ITC for CSP receives a long-term extension. This is the strong recommendation of WGA and recognizes the importance of the ITC to the development of a CSP industry. I have already provided an example of what can happen when the tax policies of the federal government change -- the CSP industry stalled. CSP projects are capital intensive projects and take 4-6 years to negotiate, permit, finance and construct. If CSP developers and their suppliers are to have a predictable, stable climate for planning and financing, for building manufacturing plants for mirrors and other parts, and for negotiating multi-year development contracts to bring down the cost of CSP energy, the industry must have a ten year tax credit.

State actions:

- States must also do their part to facilitate the development of a utility scale solar energy industry in their economies. States should work together with federal agencies to expedite transmission planning and permitting to solar zones. States should make their property and sales tax policies fairer to capital intensive solar equipment. States should encourage longer power purchase agreements with solar developers, reflecting the length of time these projects normally last, and states should enact legislation or promote policies that encourage the construction of transmission to identified solar areas, including the ability to recover the cost of such transmission in rates. Finally, State and Federal agencies must be encouraged to work together more efficiently to permit CSP projects.

Conclusion: On behalf of the CSP member companies of SEIA and BrightSource, I want to thank the Subcommittee for the opportunity to testify about recommendations for change in federal policies to support the development of utility scale solar energy. We have a window of opportunity now, when this Congress and the nation are focused on diversifying our energy supply with clean, low-carbon domestic sources of energy. We urge the Committee to act expeditiously.

Thank you, Mr. Chairman and members of the Subcommittee. I will be happy to answer any questions you may have.

EXHIBIT 1

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Washington, D.C. 20240
http://www.blm.gov

April 4, 2007

In Reply Refer To:
2800 (350) P

EMS TRANSMISSION 04/11/2007
Instruction Memorandum No. 2007-097
Expires: 09/30/2009

To: All Field Officials

From: Director

Subject: Solar Energy Development Policy

Program Area: Rights-of-Way Management, Solar Energy
Facilities Management, Solar Energy

Purpose: This Instruction Memorandum (IM) establishes policy for the processing of right-of-way applications for solar energy development projects on public lands administered by the Bureau of Land Management (BLM) and evaluating the feasibility of installing solar energy systems on BLM administrative facilities and projects.

Policy/Action: This IM replaces the Solar Energy Development Policy (IM No. 2005-006), issued October 20, 2004. The BLM's general policy is to facilitate environmentally responsible commercial development of solar energy projects on public lands and to use solar energy systems on BLM facilities where feasible. Applications for commercial solar energy facilities will be processed as right-of-way authorizations under Title V of the Federal Land Policy and Management Act (FLPMA) and Title 43, Part 2804 of the Code of Federal Regulations (CFR). Commercial concentrating solar power (CSP) or photovoltaic (PV) electric generating facilities must comply with the BLM's planning, environmental and right-of-way application requirements, as do other similar commercial uses.

The BLM will evaluate the feasibility of installing PV systems on administrative facilities and on range improvement, resource monitoring, public safety, and recreation projects. Project planning and design should incorporate an appropriate analysis to determine the feasibility, cost and benefits of using PV systems. In June 2006, an Energy Savings Performance Contract was awarded to Johnson Controls, Inc. for the installation of energy efficiency technologies into BLM facilities. Phase II of the contract, expected to be awarded in May 2007, will include the installation of solar and other renewable energy technologies. Trent Duncan, BLM Utah State Office, at 801-539-4090 or Pat Fleming, BLM National Science and Technology Center, at 303-

987-6856 can provide additional information on installing PV systems on BLM administrative facilities or for other project uses.

Inventory and Planning

The Department of Energy's National Renewable Energy Laboratory (NREL) has prepared solar insolation potential maps at the request of the BLM for Arizona, California, Nevada, and New Mexico. The maps identify areas with one percent or less slope with high levels of solar insolation that have potential for commercial solar energy development. Solar maps from NREL are available at http://www.nrel.gov/csp/maps.html.

New or updated BLM land use plans are required to consider NREL maps showing areas having commercial solar energy development potential. The land use plans or revisions should address potential impacts of solar energy development and related environment and local community issues. The land use plans should sufficiently analyze and consider the potential for solar energy development and the local environmental or community issues related to making lands available (or not available) for commercial solar energy development. When necessary, the land use plan amendment and the environmental analysis for the solar energy development proposal can be prepared and processed concurrently. This policy does not require updates for recently completed plans to include an analysis of solar energy development.

Right-of-Way Applications

Applications for commercial solar energy facilities, both PV and CSP, will be processed as right-of-way authorizations under Title V of the FLPMA and Title 43, Part 2804 of the CFR. Applications submitted to the BLM for commercial solar energy development projects will use Form SF-299, Application for Transportation and Utility Systems and Facilities on Federal Land, consistent with the requirements of 43 CFR 2804. No separate authorization is necessary if the installation of a PV system is part of another authorized facility or use. As an example, oil and gas operators may install PV facilities for operating metering equipment and lighting systems on their lease area as part of an approved oil and gas lease operation. In addition, oil and gas pipeline right-of-way authorizations would allow for the use of PV facilities at pump station locations. Those are valid uses that the BLM can encourage and allow.

Right-of-way applications for solar energy development projects will be identified as a high priority Field Office workload and will be processed in a timely manner. This priority is consistent with the President's National Energy Policy of 2001 and the Energy Policy Act of 2005. Adequate resources should be provided to review and process the application. The applicant must submit a complete and acceptable application and provide a cost recovery payment before the BLM will initiate processing of a right-of-way application. It is anticipated that most right-of-way applications for solar energy development will be Category 6, full cost recovery applications. The BLM will apply sound business practices in expediting the application process. For further information regarding the BLM ROW application process, please refer to the following BLM web site:
http://www.blm.gov/wo/st/en/prog/energy/cost_recovery_regulations.html.

The BLM authorized officer should schedule pre-application meetings with applicants (43 CFR 2804.10). This facilitates preparation and processing of applications that identifies potential issues and land use conflicts impacting the authorized officer's decision to grant or not grant the right-of-way authorization. The pre-application process will identify any environmental or cultural resource studies that may be needed, assess public interest and concerns, identify other authorized uses within or near the area, allow consideration of potential alternative site locations, and outline arrangements for paying the costs associated with processing a right-of-way grant.

Early public notification and involvement of local communities and other interests is also important in increasing public acceptance and avoiding potential conflicts, especially in areas where other uses exist on the public lands. The application process is pre-decisional and may or may not result in the BLM granting a right-of-way authorization.

A BLM State or Field Office right-of-way project manager will be assigned to process the application; ensure appropriate cost recovery; and monitor construction and use of the land for the authorized purpose. As an option, the BLM State Director may request assistance of a National Right-of-Way Project Manager from the BLM Washington Office (WO-350).

Solar energy right-of-way applications and authorizations are subject to appropriate cost recovery and rental payments required by 43 CFR 2804.14, 43 CFR 2805.16, and 43 CFR 2806.10, and the bonding requirements of 43 CFR 2805.12(g).

Right-of-Way Authorizations

A right-of-way grant (Form 2800-14) will be used to authorize all facilities held by the holder of the grant on the public lands related to a commercial solar energy development project. This authorization will include the solar collectors, tower, turbine generator, fossil fired generator for hybrid systems, thermal storage, access roads, electrical and transmission facilities, and other testing and support facilities. The lands involved in the right-of-way grant will be defined by aliquot legal land descriptions and be configured to minimize the amount of land involved.

The right-of-way authorization will contain appropriate stipulations relating to all aspects of project development including, but not limited to, road construction and maintenance, vegetation removal, natural, cultural and biological resources mitigation and monitoring, and site reclamation. In addition, an approved Plan of Development (POD) for construction and operation of the solar facility must be completed prior to beginning construction. When possible, the right-of-way authorization and POD can be processed simultaneously.

The right-of-way holder should be encouraged, through terms and conditions of the right-of-way authorization, to work with the BLM to increase public acceptance and awareness of the benefits of solar energy development by providing information and public viewing areas at safe locations near the development. The BLM and right-of-way holder can provide a positive message on the responsible use of renewable resources and the multiple resource use on public lands.

A bond will be required for solar energy development right-of-way grants to ensure compliance with the terms and conditions of the authorization and the requirements of the regulations, including reclamation. The reclamation provisions within the POD should include not only removal of solar collectors and other structures, but also the reclamation of access roads and disturbed areas. The amount of the bond will consider potential reclamation and administrative costs to the BLM.

The term length of the authorization is not limited by regulation; however, it should recognize the overall costs and useful life of solar energy facilities (43 CFR 2805.1 0(a)(3)). The term of the solar energy authorization for a commercial facility should not exceed the design life of the project, typically 30 years. The authorization may be renewed consistent with the provisions of the regulations (43 CFR 2807.22(a)). Other compatible uses may be authorized, but are unlikely due to the intensive use of the site for PV or CSP facility equipment.

The right-of-way grant may be assigned consistent with the provisions of the regulations (43 CFR 2807.21(b)). However, all assignments shall be approved by the BLM authorized officer and the qualifications of all assignees must comply with 43 CFR 2803.10 and the Due Diligence section of this IM and the requirements of the regulations (43 CFR 2807.2 1(c)(1) and 43 CFR 2807.21(d)). The assignment shall not interfere with the BLM's enforcement of the terms and conditions of the authorization or management of the associated public lands.

All final decisions issued by the authorized officer in connection to the authorization of solar energy projects can be appealed under 43 CFR part 4 and 43 CFR 2801.10. It should also be noted that right-of-way grants are issued as full force and effect decisions (43 CFR 2801.10(b)) and will remain effective during any appeal period.

Rental

All solar energy right-of-way authorizations are subject to rent in accordance with this IM, unless they are specifically exempt from rent by statute or regulation. Some holders or facilities may be exempt from rent pursuant to the Rural Electrification Act of 1936, as amended (43 CFR 2806.14(d)).

The holder of a right-of-way authorization shall pay an annual rent established by the BLM using real estate appraisals and reviews procured from the Department of the Interior, Appraisal Services Directorate. The rents paid will be in conformance with 43 CFR 2806.10(a). The appraisal should consider the value of the rights to be conveyed and the lease of comparable lands in an early or similar stage of potential development, e.g., commercial land or industrial land, as of the date of the appraisal. The procured appraisal and review report will be prepared on a site-specific basis and reflect market conditions for setting rental payments. Since the rental payment reflects the full use of the public land for solar facilities, similar to a lease for industrial purposes, there are no additional royalty payments for electric generation.

The appraisal assignment to estimate annual rental should also include a request to identify an appropriate rental index for updating the rental payment. The justification for the index should reflect normal market conditions for updating rental payments on similarly used land.

The rental payment will be phased in over a 3-year period to permit additional data collection that may be required after the approval of the grant, preparation and approval of a POD, and construction of the facility. The rent for the first year will be 25 percent of the BLM approved rent, 50 percent the second year, and 100 percent the third year.

Competitive Interest

Right-of-way applications for solar energy development will generally be accepted and processed on a first-come, first-serve basis. The right-of-way regulations (43 CFR 2804.23(c)) provide authority for offering public lands under competitive bidding procedures for solar energy right-of-way authorizations. The BLM will initiate a competitive process if a land use planning decision has specifically identified an area for competitive leasing. The BLM may also consider other public interest and technical factors in determining whether to offer lands for competitive leasing. Competitive bidding will follow the procedures required by 43 CFR 2804.23(c).

Due Diligence

The BLM will discourage applicants from holding right-of-way authorizations for purposes of speculating, controlling, or hindering development of solar energy on public lands. Speculative interest can be mitigated by ensuring the applicant meets qualification requirements of the regulations (43 CFR 2803.10(a-c)), and requiring certain due diligence provisions in the right-of-way authorization for solar energy development.

The regulations clearly provide authority to require that the application include information on the applicant's technical and financial capability to construct, operate, maintain and terminate the solar energy facilities (43 CFR 2803.10(b)). This technical capability can be demonstrated by obtaining the funding, designing, constructing or successfully operating an energy generating project. Actual ownership, development, or successful management of similar-sized electric energy-related facilities within the last 5 years by the applicant would generally constitute evidence of financial capability. The regulations provide the authority to deny the application if the applicant cannot demonstrate adequate technical ability to construct, operate, and maintain the solar energy facilities (43 CFR 2804.26(a)(5)). The BLM may also deny an application if the applicant does not provide, in a timely manner, additional information requested by BLM to process an application or the cost recovery funds required by 43 CFR 2804.14.

In addition, the solar energy development right-of-way grant shall include a due diligence requirement for installation of facilities consistent with an approved POD. If construction of solar energy facilities has not commenced within 3 years after the effective date of the grant, the right-of-way holder shall provide the BLM good cause as to the nature of any delay, evidence of progress toward beginning construction, and the anticipated date of start-up operations. Failure

of the holder to comply with the due diligence provisions of the solar energy development right-of-way grant provides the authorized officer the authority to terminate the authorization (43 CFR 2807.17).

Environmental Review

The scope of the environmental analysis required by the National Environmental Policy Act (NEPA) for a solar energy development project should address all aspects of the solar project, including direct, indirect, and cumulative effects of the proposed action.

The scope of the NEPA analysis and the compliance requirements with the Endangered Species Act, the Migratory Bird Treaty Act, the National Historic Preservation Act, and other laws for a solar energy development right-of-way application should address the installation and maintenance of solar collectors, water for steam generation and cooling purposes, oil or gas used by backup generators, thermal or electrical storage, turbines or engines, access roads and electrical inverters and transmission facilities. The scope and level of site clearance should include the areas of proposed surface disturbance and areas potentially affected by the project.

The level of NEPA analysis will be determined by project scoping and the anticipated potential impacts on the environment. The level of analysis will reflect the amount of land needed for the solar energy collection and associated support facilities, the amount of surface to be disturbed, water requirements, and potential impacts on wildlife and other resources. It may be possible to combine the required environmental review process for a solar energy development project with other required State or local environmental requirements. This would streamline the process and be consistent with Departmental policy on intergovernmental cooperation.

LR 2000 Data Entry

Commodity code 975 will be used to identify solar energy applications and authorizations in LR 2000, the BLM case recordation system. In addition, the data entry will also identify under the comment section whether the authorization is for a PV or CSP facility. This will allow the BLM to track and report solar energy activities on public land within LR 2000.

Timeframe: This policy is effective immediately.

Background: As part of an overall strategy to develop a diverse portfolio of domestic energy supplies for our future, the National Energy Policy of 2001 and the Energy Policy Act of 2005 (Public Law 109-5 8, August 8, 2005) encourage the development of renewable energy resources, which includes solar energy. Section 211 of the Energy Policy Act of 2005 encourages the approval of at least 10,000 megawatts (MW) of non-hydropower renewable energy projects on the public lands within the next 10 years.

Solar energy has significant potential in the western United States for converting the sun’s light into electricity using technology that is rapidly improving. Solar energy currently accounts for

less than one percent of total U.S. electricity supply. As the cost of producing solar energy declines, there will be a greater interest in locating large solar power systems on public lands. Please refer to the attachment for additional information regarding PV and CSP solar systems.

Budget Impact: The application of this policy will have a minimal budget impact. Any land use planning associated with this policy will be part of existing planning efforts. Land use plans will take into account the solar mapping data described under the Inventory and Planning section of this IM. It is assumed that any solar energy commercial development will probably meet the criteria for full cost recovery. In addition, the BLM post authorization monitoring activities are subject to the cost recovery provisions of the regulations. These procedures will minimize any unnecessary budget and workload impacts.

Manual/Handbook Sections Affected: Manual 2801, Right-of-Way Management and Handbook H-2801-1. Land Use Planning Handbook H-1601-1.

Coordination: The Washington Office Planning, Assessment and Community Support Division (WO-210), the Property, Acquisition and Headquarters Services Division (WO-850), and the BLM State Offices were contacted to provide input on this policy prior to finalization.

Contact: Please direct any questions concerning the content of this IM to the Washington Office Division of Lands, Realty and Cadastral Survey, attention: Rick Stamm, at 202- 452-5 185; or rick_stamm@blm.gov.

Signed by:
James M. Hughes
Acting, Director

Authenticated by:
Robert M. Williams
Division of IRM Governance,WO-560

1 Attachment
1-Solar Energy Systems (2 pp)

Solar Energy Systems

There are two basic types of solar energy installations that produce electrical power: photovoltaic (PV) systems and commercial concentrating solar power (CSP) systems. These can be combined with natural gas or other fossil fueled power systems to form hybrid systems. To work effectively, the solar installations require consistent levels of sunlight (solar insolation) and would be backed up with battery, thermal, or other forms of energy storage.

Solar insolation is a measurement that has become increasingly more accurate in evaluating specific sites for solar energy installations. Solar insolation is the amount of sunlight hitting an area on the surface of the earth over a specific period of time. The higher the exposure of sun measured on an annual basis, the more electrical power can be produced.

The quality of the solar resource, over a month or a year, is an important indicator in determining the viability of a site for commercial solar development. Other site attributes include access to available water for concentrated solar power steam generation and cooling, proximity to electric transmission facilities, and site slope. The most promising areas for solar energy development on public lands are in Arizona, southern California, Nevada, and New Mexico. Parts of Utah and Colorado also have excellent levels of solar insolation.

Photovoltaic Systems

PV systems use semiconductor materials similar to those in computer chips to capture the energy in sunlight and convert it directly into electricity. PV cells are electrically connected into a weather-tight module. These modules can be further connected to form an array which can include electrical connections, mounting hardware, power conditioning equipment, and batteries that store solar energy. The size of the array depends on the amount of sunlight and the needs of the customer. Large PV electrical generating systems have not generally been used for commercial utility applications due to the high upfront cost.

Most PV applications are small, use little or no land, and have minimal or no environmental impact since electricity created is generally used on-site or as part of an existing authorized use. They generally provide power to individual homes and small buildings. They are also found in rural areas on communication towers, water pumps, and road and traffic signs.

The environmental impact of small distributed PV systems is minimal, as they require no water for system cooling and generate no by-products. Most installations of solar PV systems are less than 5 kilowatts (kW) in capacity, and tend to be most cost-effectively applied in isolated locations where construction of electric transmission and distribution networks would be more costly. These types of solar PV systems will likely be installed on an existing facility or structure or as part of an existing authorization.

Concentrating Solar Power Plants

CSP plants are generally large systems that use mirrors to focus sunlight to create high temperatures. The high temperatures generated by the focused sunlight are used to generate electricity either by a heat engine causing gas to expand and move a piston or by a conventional power cycle using boiling water to create steam that turns a turbine. For a steam-driven CSP system, facilities include a solar collection system, a system for transferring the collected energy to a working fluid or to a storage system, and a system such as a turbo-generator for converting the thermal energy to electricity. Many of these power plants have a hybrid solar/fossil fuel capability that can be used during periods of low solar energy. Many also include thermal storage. These capabilities enable CSP plants to supply energy to a utility grid when it is most needed (day or night).

The lands having the best solar resources are usually arid or semi-arid. Unlike PV systems, CSP systems require sunlight that is not diffused by clouds. This limits their use to the West, with the southwest possessing some of the best solar energy resources.

There are currently three different types of centralized CSP systems: parabolic trough, solar "power tower", and solar dish. These systems require relatively flat land with slopes not exceeding three percent to accommodate the solar collectors. The area of land required depends on the type of plant, but it is about five acres per produced megawatt (MW). It is anticipated that a commercial scale CSP facility may be in the range of 100 MW or larger and will require in excess of 500 acres. This large land base requirement can involve significant surface disturbance with an associated potential impact on a variety of resources and resource uses on the public lands. These types of facilities also require roads, water, protection from gusty winds, and security fencing. Electricity generated is sold to the utility under a power purchase agreement.

Additional information on solar energy technology is available from the Department of Energy at http://www.eere.energy.gov/RE/solar.html or the National Renewable Energy Laboratory (NREL) at http://www.nrel.gov

EXHIBIT 2

Western Governors' Association

Policy Resolution 06-10

June 11, 2006
Sedona, Arizona

Clean and Diversified Energy for the West

A. BACKGROUND

1. Traditional resources such as oil, natural gas, coal and hydropower have played and will continue to play a significant role in meeting future energy needs. At the same time, resources such as energy efficiency, solar, wind, geothermal, biomass and advanced coal technologies are relatively untapped but hugely promising. Together, the combination of these resources provides the foundation for a clean, diversified and secure energy future for the West.

2. The Western Governors' Association launched its Clean and Diversified Energy Initiative in a June 2004 resolution *(04-13)* that set out the objective of "identifying ways to increase the contribution of renewable energy, energy efficiency, and clean energy technologies within the context of the overall energy needs of the West." This resolution identified the need for new clean and diversified energy sources for transportation, buildings, electricity, and other needs, and outlined four important goals:

    i. additional development of 30,000 megawatts of clean energy by 2015 from resources such as energy efficiency, solar, wind, geothermal, biomass, clean coal technologies, and advanced natural gas technologies;
    ii. a 20% increase in energy efficiency by 2020;
    iii. an ability to meet the transmission needs of the West for the next 25 years; and
    iv. better position the Western energy system to respond to new environmental challenges, including potential limitations on emissions.

3. The Western Governors' Association recognizes that a clean and diversified energy system will:

    - Protect the Western economy from energy shortages and price spikes that are harmful to businesses and consumers and disruptive to investment;

- Augment our pursuit of a national energy policy that will result in a diverse energy portfolio;
- Accommodate the energy needs of a growing, mobile Western population;
- Better position the Western energy system to respond to new local, regional and environmental challenges; and
- Take advantage of the development of new technologies that will lower the cost of renewable energy and reduce the cost of controlling emissions from the West's vast fossil fuel resource base.

4. Western states have a variety of energy efficiency and clean energy policies and programs in place. For example, eight states have established renewable energy standards, twice the number in place when the resolution launching the Clean and Diversified Energy Initiative was passed. Nine states manage funds to promote energy efficiency.

5. Western Governors agreed to collaborate and offer their support for regional and sub-regional initiatives being undertaken among Western states to:

   i. Improve the balance and overall adequacy of all energy resources in a manner which will strengthen economic growth, promote energy price stability, mitigate environmental impact, maximize reliability and result in an abundance of diversified resource supplies; and

   ii. Promote the integration of traditional and new energy resource technologies.

6. The Western Governors' Association formed the Clean and Diversified Energy Advisory Committee (CDEAC) to identify technically and financially viable policy mechanisms, stressing non-mandatory, incentive-based approaches, to meet the goals. In turn, the CDEAC created a series of task forces to specifically consider options related to solar, wind, biomass, geothermal, advanced coal, advanced natural gas, energy efficiency and transmission.

7. The CDEAC and the technology task forces met over the intervening period to:

   - Review and consider the feasibility of the clean and diversified energy goals;
   - Examine the deliverability and adequacy of energy resources, including an assessment of promising new resources and technologies;
   - Examine the obstacles to both intrastate and interstate transmission siting

and construction in order to access clean energy resources;

- Consider price, reliability, and the mitigation of environmental impacts of all recommendations;
- Develop energy efficiency recommendations that take into account all types of energy used in buildings, not just electricity; and
- Address both technical and policy issues.

8. The CDEAC submitted its report to the Western Governors in May, 2006 with a series of recommendations designed to meet the goals of the governors' initiative. The CDEAC report identified strategies and policy options for resources such as solar, wind, geothermal, biomass, advanced coal technologies, and advanced natural gas technologies that can far exceed the target of 30,000 MW by 2015. It also identified cost-effective energy efficiency that can reduce annual load growth in the West from around 2% to 0.5% while saving customers and businesses billions of dollars a year.

B. GOVERNORS' POLICY STATEMENT

1. The Western Governors acknowledge and recognize the positive contribution of more than 250 CDEAC process participants who dedicated time, resources and energy to this comprehensive project, as well as those who provided financial support. The CDEAC's work has been productive, collaborative and influential. The Western Governors accept the CDEAC report with commendation to the many individuals, organizations and staff that made it a success.

2. Western Governors agree to draw upon the full range of recommendations contained in the CDEAC report as a basis on which to advocate for energy policy changes at the federal and regional levels and their respective states, where appropriate.

3. Western Governors are supportive of federal energy polices that:

- Provide for a long-term (10 year) extension of the production tax credit for all renewable energy technologies, with complementary polices for consumer-owned utilities and tribes;
- Provide tax credits for energy efficiency investments
- Raise the cap on the residential investment tax credit to $10,000 for renewable energy or distributed generation systems;
- Support improvements in national appliance efficiency standards;
- Encourage adequate funding for state programs, including energy efficiency,

clean generation and storage technology research, development and demonstration;

- Encourage federal agencies to collaborate with Western states and regional organizations on facility siting and infrastructure planning, consistent with sound, sustainable environmental practices;
- Extend the federal IGCC tax credit for five years and provide a tax credit

program for carbon capture and sequestration for at least five years;

- Support increased federal support and tax incentives for the

construction of

multiple pilot facilities that demonstrate IGCC, in the Western United States in

high altitude areas using western coal; and

- Encourage proactive, transparent, stakeholder-driven regional transmission expansion planning, defer to existing regional and sub-regional processes that meet such standards, and reform imbalance penalties to allow for greater use of the existing transmission system.

4. Western Governors find that a strong and resilient transmission and distribution grid is critical to electricity affordability and reliability. Grid expansion must also be undertaken in an environmentally responsible manner. We encourage regulators, policymakers, utilities, transmission operators and other stakeholders to consider the recommendations identified within the CDEAC report in order to eliminate barriers to greater utilization of clean energy resources across the west.

5. Western Governors agree to collaborate in advancing regional and sub-regional policies for major interstate clean energy projects and programs, and to promote implementation of the Western Regional Energy Generation Information System to facilitate development of regional markets

6. Western Governors support reforms in the U.S. Federal Energy Regulatory Commission's Open Access Transmission Tariff to implement the recommendations of the CDEAC that promote (a) regional transmission planning expansion and (b) expanded use of the existing transmission grid by reforming imbalance penalties.

7. Western Governors recognize that a combination of state, regional and federal policy action will be required to advance a clean and diversified energy system and deliver the reliability, cost and environmental benefits to Western energy consumers. Accordingly, Western Governors support the promotion and distribution of the CDEAC report in advancing such action.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Western Governors direct the WGA staff to work toward federal adoption of the policies supported in this resolution. The adoption and implementation of

clean energy policies remains a high priority for Western states.

2. The Western Governors' Association will assist, as available and appropriate, with the development of regional or interstate policies and projects that are consistent with this resolution.

3. The Western Governors direct the WGA staff to consider options to ensure continued broad stakeholder involvement into energy policy discussions regarding energy efficiency and conservation, supply and energy use, including the development of funding mechanisms to continue the work.

4. The Western Governors direct Western Governors' Association to identify mechanisms to assist the Governors in enacting policies that achieve clean and diversified energy goals and report back to the governors not later than the winter 2006 meeting. These mechanisms should include:

- Act as a clearinghouse by collecting and disseminating information on adopted policies and programs;
- Measurement and reporting of progress against energy efficiency and clean energy generation goals; and
- Regularly collaborate with existing regional policy organizations, WGA affiliates such as the Western Interstate Energy Board, the Western Regional Air Partnership, and other entities to develop and implement regional clean energy policies.

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Western Governors' Association
Clean and Diversified Energy Initiative

Solar Task Force Report

Executive Summary

The Western Governors' Association's Clean and Diversified Energy Advisory Committee (CDEAC) commissioned this task force report in February 2005. Members of the Task Force are listed below. This is one of several task force reports presented to the CDEAC on December 8, 2005 and accepted for further consideration as the CDEAC develops recommendations for the Governors. While this task force report represents the consensus views of the members, it does not represent the adopted policy of WGA or the CDEAC. At their Annual Meeting in June, 2006, Western Governors will consider and adopt a broad range of recommendations for increasing the development of clean and diverse energy, improving the efficient use of energy and ensuring adequate transmission. The CDEAC commends the Task Force for its thorough analysis and thoughtful recommendations.

Members of the Solar Task Force

Glenn Hamer (Chair)	First Solar (CDEAC member)
Fred Morse Steve	Morse Associates, Inc.
Chadima David	Energy Innovations, Inc.
Kearney Don Aitken	Kearney & Associates
Mitch Apper Rajiv	Donald Aitken Associates
Arya Jon Bertolino	Sunergy Systems
Sara Birmingham Bill	Oregon Renewable Energy Center
Blackburn Bruce	Sacramento Municipal Utility District
Bowen Dave	Pacific Gas & Electric
Cavanaugh Mike	California Energy Commission
D'Antonio Kevin	Pacific Gas & Electric Bureau
Doran Todd Foley	of Land Management
Lisa Frantzis Shannon	Public Service Co. of New Mexico
Graham Gordon	University of Colorado
Handelsman Thomas	BP Solar
Hansen John Hargrove	Navigant Consulting
Herb Hayden	Navigant Consulting
	Shell Solar
	Tucson Electric Power
	Sierra Pacific Power Company /Nevada Power
	Arizona Public Service Company

Mike Henderson	R.W. Beck, Inc.
Scott Jones	Sandia National Laboratory
Scott Kane	Creative Energies/Wyoming Outdoor Council
Golam Kibrya	California Energy Commission
Hal LaFlash	Pacific Gas & Electric
Bob Liden	Stirling Energy Systems, Inc. Arizona
Barbara Lockwood	Public Service Company Coalition for
Ben Luce	Clean, Affordable Energy
Ravi Malhotra Tom	International Center for Appropriate & Sustainable Technology
Mancini Kate	Sandia National Laboratory
Maracas Robert	Red Mountain Energy Partners
Margolis Michael	National Renewable Energy Lab
McDowell Jan	Rocketdyne
McFarland Mark	Americans for Solar Power /PUMA Solar
Mehos Les Nelson	National Renewable Energy Lab
Chris O'Brien	California SEIA/Western Renewables Group
Craig O'Hare	Sharp Solar
Laurie Park	New Mexico Energy Department
Terry Peterson	Navigant Consulting
Steve Ponder	Electric Power Research Institute
Rhone Resch	Florida Power and Light Company
J.P. Ross	Solar Energy Industries Association
Sol Shapiro	Vote Solar
Ed Smeloff	Consultant
Tim Tutt	Sharp Solar
Michael Wheeler	California Energy Commission
Tex Wilkins	National Renewable Energy Lab
	U.S. Department of Energy

Facilitator

Kate Kopischke	
Will Singleton	Policy Consensus The
	Keystone Center

Quantitative Working Group

The quantitative working group was created by the CDEAC to compare the analysis of data among task forces in order to ensure consistency in assumptions across the reports. The following members contributed to this report:

Doug Arent	National Renewable Energy Laboratory
John Tschirhart	Department of Economics, University of Wyoming
Dick Watson	Quantitative Working Group

Continued prosperity of the West depends on strong economic growth, which in turn requires a secure and predictable energy supply. The recent volatility of wholesale natural gas prices, which have risen from under $3.00/MBTU in 2001[1] to more than $14/MBTU in October of 2005[2], are having a dramatic impact on natural gas and electricity prices facing citizens in the Western states, prompting many to look for alternative sources of energy to meet their needs. The solar radiation in the West is the most abundant of all the renewable sources and a practical energy resource of great economic value. Solar energy can make a major contribution to the 2015 goal of 30,000 MW of clean energy adopted by the Western Governors' Association in 2004. In fact, we project that as much as 8,000 MW of capacity could be installed with a combination of distributed solar electricity systems and central concentrating solar power (CSP) plants by 2015, and an additional 2,000 $_{MWth}$ of solar thermal systems could be installed in the same timeframe. At that point, the cost of electricity from future CSP plants should be on a par with that from plants burning costly natural gas, and distributed systems should have declined in price to the point that they should be able to produce electricity below retail utility rates in most parts of the West. Best of all, the fuel source for these systems is free. Once the systems are installed, all price volatility is removed, yielding the secure and predictable energy supply so critical to the region's growth.

Initial system expense is currently the single biggest barrier to widespread deployment of solar. Worldwide experience has shown, however, that these costs can be driven down through accelerated growth sparked by temporary economic-development policies. The recently enacted two-year, 30 percent federal investment tax credit is a case in point. For distributed solar technologies, this credit will provide short-term help to increase the number of systems installed throughout the states of the Western Governors' Association. It will have little effect on central-station solar installations not already well underway, however, because the two-year duration is too short relative to the time needed to develop projects and bring them into operation. It is imperative, therefore, that Western Governors use their considerable leverage in Washington to ensure that this credit is extended for a full 10 years. Without the assurance of this support, large central systems will find it difficult to attract financial backers, and manufacturers of components used in distributed solar systems will not have the confidence to make investments to expand production capacity that will ultimately drive down costs for everyone.

This report outlines additional initiatives needed at the state and federal level to unleash private investment in solar. Many involve changes in policies or regulations with little or no budgetary impact. Where direct incentives are involved, they are designed to decline over the next 10 years to the point that they are no longer needed to sustain a rapidly expanding industry.

http://futures.tradingcharts.com/hist_NG20013.html
http://www.wtrg.com/daily/gasprice.html

The Solar Task Force offers the following set of recommendations to the Governors that, if enacted, will enable solar technologies to make a meaningful contribution to the 30,000 MW of new clean, diversified energy.

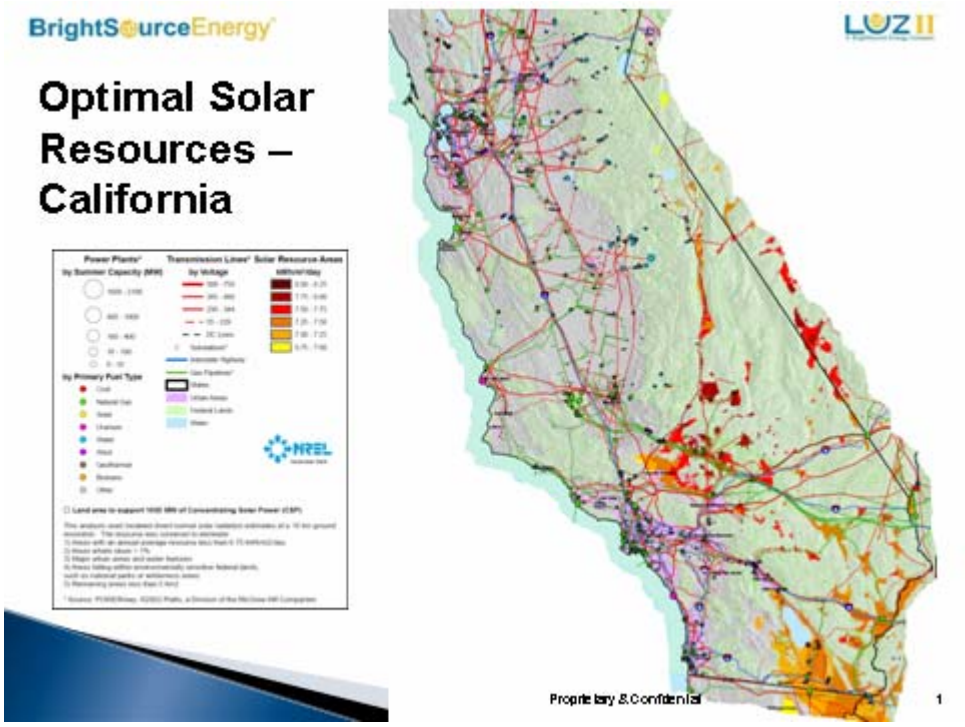
- Work aggressively with Congressional delegations to extend the 30% federal investment tax credit to a 10-year term and remove the $2000 cap on residential systems.
- Expand the deployment of central solar plants by encouraging 30-year power purchase agreements and aggregation of utility plant orders and project bids to accelerate scale-up cost reductions.
- Encourage widespread adoption of distributed solar by creating incentives either in the form of declining up-front rebates that help reduce the "first cost" challenge in purchasing a solar system or by establishing ongoing performance-based incentives that pay for production of electricity, both of which have been adopted in certain WGA states. Incentives should be available to both solar thermal (space heating and cooling as well as water heating) and solar electricity systems and apply equally to residential and commercial buildings.
- Reward solar production and encourage conservation during critical peak periods by facilitating simplified interconnection standards, net metering, and rate structures that will benefit distributed solar systems.
- Exempt both CSP plants and distributed solar systems from state and local sales and property taxes. The loss to state treasuries of these taxes will be more than compensated by increases in tax revenues through growth in personal and corporate income taxes, gross receipts taxes from equipment sales, compensating taxes on imported equipment and other taxes specific to electric utilities. In addition, some of the money that now leaves states' economies for energy purchases will instead remain at home.
- Integrate solar into existing state policies such as a Renewable Portfolio Standard, which can help develop central and distributed solar markets when structured properly.
- Consider adopting target tariffs that reflect the value of solar energy for peak periods and that adjust for natural gas price changes.

With these policies implemented, an additional 32,500 jobs will be created and a new solar energy manufacturing industry will emerge in the West.

Broadly speaking, there are two technology market segments that can take advantage of the West's abundant solar resource: central station and distributed generation. Central station solar fits the typical power-production model employed throughout the grid, generating electricity at an often remote location and wheeling that energy across the grid to recipient utilities and other customers. In contrast, distributed solar systems are installed on rooftops or on land adjacent to buildings, enabling homeowners, businesses, schools and government buildings to generate their own electricity and/or heat.

Both central station and distributed solar can be successfully deployed in the West, and both will be needed to help meet the Governors' target of 30,000 MW of new clean, diversified energy by 2015. However, the barriers to widespread adoption and consequently the policies needed to overcome them are in most cases as different as the two deployment strategies themselves. For these reasons, the full report from the Solar Task Force is divided into two sections, one covering central station solar and the other distributed solar. Beginning with the executive summary, each section presents the various types of solar systems that can be deployed; specific barriers they face; the policies and programs the task force recommends that the Governors consider to overcome those barriers; and the potential impact in energy production, jobs and other economic and environmental benefits that the WGA states will enjoy as a result.

EXHIBIT 3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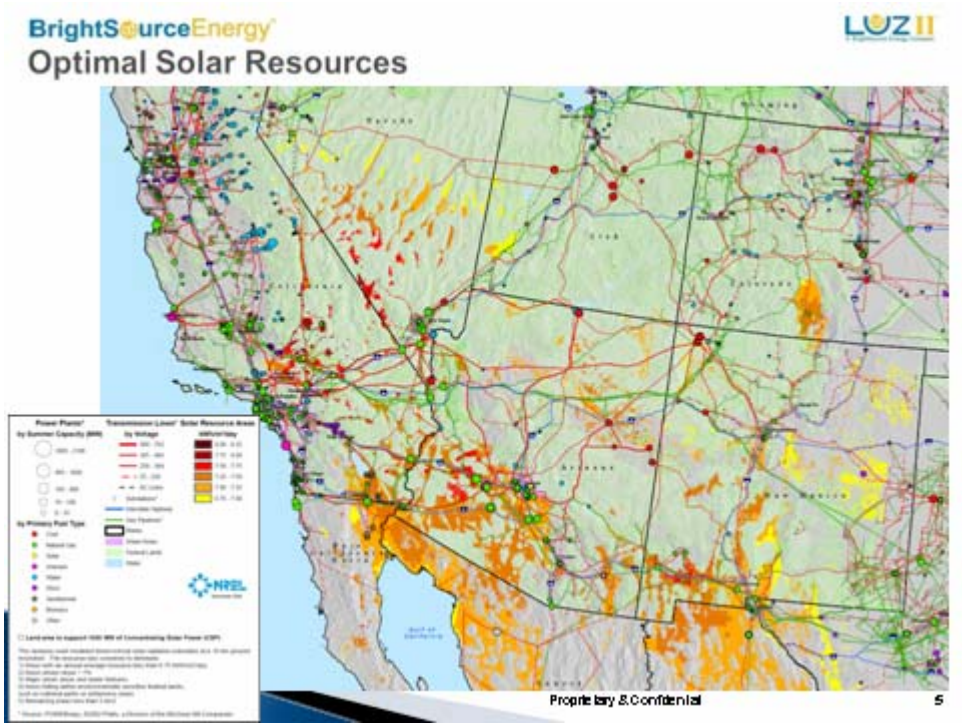
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