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"Solar Energy Development on Federal Lands: The Road to Consensus"
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Introduction

Mr. Chairman and members of the committee, thank you for the opportunity to appear here today to discuss the Bureau of Land Management's (BLM) efforts to develop solar energy resources on public lands in an environmentally sensitive and responsible manner. I am accompanied here today by Darrin Thome, Chief of the Endangered Species Act Division of the Pacific Southwest Region of the U.S. Fish and Wildlife Service (FWS).

My testimony today will describe the considerable potential of public lands to produce solar energy and contribute to a comprehensive national energy strategy that places high priority on renewable energy development. I will also discuss the BLM's ongoing efforts to process applications for solar energy projects, and I will outline key challenges that influence solar energy siting and transmission. Finally, I will highlight the BLM's effort to address these challenges through landscape-scale planning for six western states that have the potential for siting utility-scale solar energy facilities.

The BLM is moving quickly on pending applications that are ready for review while we simultaneously move forward with medium- and long-term implementation measures. We are aware of, and take very seriously, the President's emphasis on expeditious development of our domestic renewable energy resources while protecting and conserving important natural resources in the process.

Background

President Obama, Secretary Salazar, and Congress have expressed the critical importance of renewable energy to the future of the United States. Developing solar and other renewable energy resources is central to the Nation's efforts to reduce greenhouse gas emissions, mitigate climate change, and protect the global environment. Renewable energy is also vital to our economic development and energy security. Developing renewable energy can create jobs and promote innovation in the United States while reducing the country's reliance on fossil fuels.

The President has established ambitious goals to increase energy production from clean, renewable sources. Through investments enabled by the American Recovery and Reinvestment Act, the Administration has committed to doubling the Nation's renewable energy generating capacity over three years. To help achieve these goals, the Secretary

issued a Secretarial Order in March 2009 that makes the development, production, and delivery of renewable energy a top priority of the Department of the Interior and BLM.

Renewable Energy Resources on Public Lands

The BLM has been taking steps to more systematically address development of renewable energy resources since passage of the Energy Policy Act of 2005, which set a goal to approve 10,000 megawatts (MW) of non-hydropower renewable energy on the public lands by 2015. A number of policies and processes are now in place to guide renewable energy development, and programmatic (strategic) plans have been completed for wind and geothermal development, and for energy transmission corridors on public lands. The Administration's efforts will significantly expand these activities and allow BLM to establish a comprehensive program for renewable energy development on BLM lands. Through funding provided by the American Recovery and Reinvestment Act, BLM is investing $41 million to complete the necessary environmental studies and develop regional plans for the siting of future renewable energy projects and transmission facilities on BLM lands. In addition, the FY 2010 Budget includes $16 million for BLM's renewable energy programs, a portion of which will be used to establish dedicated renewable energy permitting offices that will help reduce BLM's backlog of pending applications for wind and solar projects and ensure more timely processing of future applications.

The BLM's completed programmatic plans indicate the public lands hold great potential to provide renewable energy. For example, the geothermal programmatic plan estimates that approximately 50 percent of the geothermal resources in the United States are on Federal lands, and geothermal energy capacity has the potential to increase by as much as 15-20 fold by 2025 (from 1,275 MW to 19,000 MW). Additionally, the wind energy programmatic plan estimated that, by 2025, wind energy capacity on the BLM-managed public lands could increase nearly ten-fold from current levels (from 327 MW to 3,240 MW). Current wind energy development proposals on the public lands could exceed these projections.

Solar energy offers new and significant development potential on public lands. Preliminary data from the work BLM is undertaking in preparing the solar Programmatic Environmental Impact Statement (PEIS) suggest that as much as 29.5 million acres of the public lands in six western states may have utility-scale solar potential. Developing these solar projects on public lands could help achieve the President's goals for the Nation's economic and energy security, and the clean energy it would generate would benefit the environment. However, it could also require significant reallocations of land resources and have local and regional environmental impacts. Depending on the technology employed, solar projects could also require access to significant water supplies in arid regions where supplies are already in high demand.

As noted earlier, the BLM is working diligently to plan for and develop solar energy resources on the public lands in an environmentally responsible manner. The BLM is conducting two concurrent and complementary efforts to accomplish these objectives. First, the BLM is accepting and processing rights-of-way (ROW) applications from

industry for solar development projects. This provides opportunities for economic development, stimulates the advancement of solar technologies, and gives both industry and government the practical experience needed to refine the project implementation process. Second, the BLM, in cooperation with the Department of Energy (DOE) is preparing a Solar Energy Development Programmatic Environmental Impact Statement (PEIS). The Solar PEIS is a landscape-scale, strategic plan for siting solar energy projects on the public lands in the six western states (Arizona, California, Colorado, Nevada, New Mexico, and Utah) that have the best potential for utility-scale solar development. The solar PEIS is designed to help speed the review of individual permit applications by providing the broad-scale cumulative effects analysis that is needed at the project level.

Solar Energy Development Applications – Process & Status

The BLM authorizes solar and wind energy development projects as rights-of-way (ROW) under Title V of the Federal Land Policy and Management Act (FLPMA). Project proponents apply for a ROW grant and pay the BLM's costs to process the application. Applicants are required to submit detailed Plans of Development (PODs) to help the BLM and the public understand the scope of the project and potential resource conflicts before a National Environmental Policy Act (NEPA) review is initiated. In addition, applicants must provide documentation that demonstrates their technical and financial capability to construct the project. Approved projects are subject to bonding to ensure compliance with the terms and conditions of the ROW grant, including land reclamation. ROW holders pay an annual fair market value rent to the United States based on the land's appraised value for commercial purposes.

As of April 1, 2009 the BLM is processing approximately 158 active applications for solar energy development. These applications involve approximately 1.8 million acres of public land and a combined generating capacity of approximately 97,000 MW. An additional 41 applications have been submitted for land already under application; these are considered inactive applications until the initial application is approved, denied, or withdrawn.

The two projects that have made the furthest progress in the approval process are both located in Southern California and are currently undergoing environmental review. The Ivanpah Solar Energy Generating System, proposed by Solar Partners, proposes to utilize 3,900 acres in the Mojave Desert near the town of Primm along the California/Nevada border and have a generating capacity of 400 MW. The Solar Two Project, proposed by Stirling Energy Systems, proposes to utilize 6,500 acres in California's Imperial Valley near El Centro and have an initial generating capacity of 300 MW, with possible expansion to 750 MW. If approved and developed as proposed, the Ivanpah and Solar Two projects would potentially triple the amount of utility-scale solar energy produced in the United States.

The Ivanpah and Solar Two projects illustrate the potential benefits – and resource management challenges – that can result from solar energy development on the public lands. These projects promise state-of-the-art solar technologies and creation of jobs.

Their combined anticipated capacity could power more than 400,000 homes and offset more than 1.5 million tons of carbon dioxide emissions per year. However, the projects are also located in desert landscapes that support unique and fragile ecosystems, and these lands are used and appreciated by the public for their diverse resource values.

Siting Challenges for Solar Energy Development

The specific impacts of proposed solar energy development on the landscapes and public lands of the Southwest will be evaluated thoroughly – and transparently – in the environmental analysis conducted for each proposed project. Broad concerns and issues, however, have become fairly clear, and they represent challenges for siting solar energy development, especially in desert regions.

A key issue is that utility-scale solar energy projects generally require exclusive and intensive use of the land on which they are sited. A typical 250-400MW solar energy project is estimated to utilize about 3,000 acres. The land utilized by a solar project is typically graded and fenced, and is essentially allocated to a single use – renewable energy production – for the long term. Because of its land disturbance footprint, the potential effects of proposed solar energy developments on wildlife habitats and sensitive species, such as the threatened desert tortoise, merit special attention and concern.

The potential effects of solar energy development on the desert's scarce water resources and aquatic habitats are also important issues. Some solar energy technologies require relatively greater amounts of water to cool thermal power plant turbines used to convert solar-produced heat into electricity. These "wet-cooled" systems can require 10-15 times the water of "dry-cooled" systems, which cool using forced-air. Other solar technologies, such as photovoltaic systems, do not require water for cooling because they directly convert solar energy into electricity, but do require some water for other purposes.

Because of the region's chronic water scarcity and water allocation issues, some land managers, municipalities, and stakeholders have questioned the use of "wet-cooled" solar systems in the Southwest deserts. Recently, the National Park Service (NPS) and Fish and Wildlife Service (FWS) expressed concerns about the potential impacts to groundwater and aquatic species from applications for solar development in Nevada's Amargosa Valley, located northwest of Las Vegas. The Amargosa Valley is a closed hydrologic basin and its water use is considered over-allocated by the State of Nevada. The Amargosa Valley is also home to the Devil's Hole pupfish, a listed endangered species, and the Department is concerned that the use of water for solar development could reduce the water table in this basin, harming the pupfish.

The Department of the Interior is committed to developing solar energy resources while protecting the environment. Secretary Salazar does not believe these goals are mutually exclusive. To help achieve this balance in the Amargosa Valley, the BLM is encouraging solar energy applicants to utilize low water or no-water technologies that appear best suited for this ecosystem. And again, the potential environmental effects of each solar energy application will be carefully evaluated, in a transparent public process and in close consultation with affected Federal agencies, to inform decision-making. BLM will also

address the effects of public lands solar development on threatened and endangered species and designated critical habitat through section 7 of the Endangered Species Act and will evaluate the potential impacts to Federally-protected lands related to air, sound and light pollution.

In addition to environmental concerns, the large amount of Federally protected land in the Southwest constrains the siting of proposed solar energy development and transmission. The BLM's California Desert District (CDD) offers a good example. The BLM manages 11 million acres in the CDD. However, 3.8 million acres are protected as wilderness, national monuments, or other special designations, and are excluded from solar energy development. Another 2.9 million acres are BLM-designated Areas of Critical Environmental Concern and have restrictions on development. About 1.4 million acres were donated or acquired using Land and Water Conservation Funds and primarily managed for conservation purposes. Many of the remaining 2.9 million acres also encompass important wildlife and plant species, possess scenic values, and provide for recreation, mining, and a wide range of other multiple uses. Site-specific assessments of these other resource values will likely further constrain siting decisions in the CDD and other regions.

Planning for Renewable Energy Transmission

Transmission access and capacity are also major factors that shape siting decisions for solar and other renewable energy development. Lack of adequate transmission capability is a clearly recognized constraint on the Nation's energy delivery system. To address this need, the BLM, in cooperation with the Forest Service and DOE, recently completed the Westwide Energy Corridor Programmatic Environmental Impact Statement process, pursuant to the Energy Policy Act of 2005. As a result of this effort, the BLM designated approximately 5,000 miles of energy transmission corridors on the public lands, out of the total 6,000 miles designated on Federal lands in the 11 contiguous western states. In California, many of these corridors followed those already established by the BLM in its land use plans to minimize impacts. BLM's efforts complement those of FERC, DOE, and others to modernize the nation's transmission grid and expand capacity throughout the country overall.

These energy corridors form the backbone for future transmission planning in the region. However, the process was completed before the transmission linkages needed to support renewable energy could be fully understood and identified. That process is underway now, and the BLM is contributing to renewable energy siting and transmission planning efforts occurring at the state and regional levels.

The State of California, for example, is leading the way by conducting the Renewable Energy Transmission Initiative (RETI) to identify the most appropriate areas and corridors for siting renewable energy development and transmission. The Western Governors' Association (WGA) is also conducting planning to identify and integrate suitable renewable energy development zones and transmission corridors throughout the western states. The BLM will continue to work with the states, WGA, and our interagency colleagues to identify needed transmission linkages, and to review and

amend the corridors as necessary to ensure they provide access to renewable energy while minimizing impacts to other important resources.

Solar Energy Development Programmatic EIS

Because solar energy resources are of such profound importance – and potential scale – the BLM recognizes that a comprehensive plan is needed to address siting and transmission challenges, and to guide solar development in an environmentally sensitive and responsible manner. To accomplish this, the BLM and DOE are working jointly, with the FWS as a cooperating agency, in preparing a Solar Energy Development Programmatic Environmental Impact Statement (PEIS). Public scoping occurred in July 2008, and the Draft PEIS is expected to be available by the end of 2009.

The Solar PEIS is a strategic plan for developing solar energy resources on public lands in six southwestern states that have the potential for utility-scale solar development. The PEIS will identify public lands that are available for and excluded from development. It will also assess the potential landscape-scale environmental impacts of solar energy development, identify best management practices for minimizing manageable impacts, and amend the BLM's land use plans to enable and facilitate solar energy development in specific areas.

The BLM will use preliminary information from California's RETI and the WGA renewable energy planning effort to help identify public lands that would be available for or excluded from development. The BLM expects to analyze an array of alternatives that would describe land open to solar energy development application, and where sufficient information exists, lands where solar energy development would be a priority for the Bureau. Areas lacking sufficient information at this time could require further resource assessment and environmental analysis that would be conducted subsequent to the PEIS.

By identifying appropriate and specific areas for solar development, the PEIS will help focus transmission needs and enable efficient renewable energy corridor planning. The environmental analysis conducted in the PEIS will also help facilitate site-level project assessment and implementation. Overall, the solar PEIS is essential to establishing a balanced solar energy program that can generate abundant clean energy, create jobs, and preserve America's valued natural resources and landscapes.

Conclusion

Mr. Chairman, thank you for the opportunity to discuss the BLM's efforts to plan and provide for solar energy development on the public lands in a way that is sensitive to and sustains our environment. The BLM and the Department of the Interior are committed to working with Congress, the states, Tribes, industry and other stakeholders to thoughtfully address siting and transmission issues, and to design and establish a sound foundation for the Nation's emerging solar energy program. I would be happy to answer any questions.