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## Siting Renewable Energy on Public Lands: Existing Regulations and Recommendations

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The United States relies on its public lands for fossil fuels, minerals, and other natural resources. As fossil fuels become less competitive and climate change accelerates, developers have also been siting renewable energy projects on public lands, including solar, wind, and geothermal. The Obama administration actively encouraged renewable energy development, and ninety-six utility-scale renewable energy facilities were operating on public lands as of 2019.

The Biden administration has committed through executive order to expand renewable energy development in the United States, including on public lands. On January 27, 2021, the White House instructed the Secretary of the Interior to “review siting and permitting processes on public lands and in offshore waters to identify . . . steps that can be taken, consistent with applicable law, to increase renewable energy production on those lands and in those waters, with the goal of doubling offshore wind by 2030.” Biden simultaneously paused new oil and gas leasing on public lands. Congress has also directed the Secretary to expand renewable energy permitting on public lands, with the goal of quintupling such energy production by 2025.

Permitting and siting renewable energy projects on public lands are complicated matters of law and policy. Public lands are subject to complex statutory and regulatory regimes and are managed by a diverse set of land management agencies. Plus, public lands bear myriad competing demands by stakeholders beyond energy development including recreation, conservation, ecosystem services, agriculture, grazing, and others. While the Biden administration has committed to expanding renewable energy development on public lands, it has also set the goal of conserving thirty percent of public lands and waters by 2030. Secretary Haaland and the Department of the Interior now face the challenging task of balancing the sometimes-competing goals of conserving public lands and waters and offering them for renewable energy development.

Because the vast majority of onshore renewable energy development is taking place on lands managed by the Bureau of Land Management (BLM), the largest federal land manager by acreage, this analysis focuses on BLM’s statutory and regulatory regime. In this piece, I provide an overview of that regime, focusing on BLM’s 2016 Wind and Solar Rule, which created a comprehensive competitive bidding structure for renewable energy right-of-way leasing on public lands. I then discuss BLM’s broad environmental review documents



covering wind and solar energy development. Finally, I consider the implications of this regulatory regime for renewable siting under the Biden administration and offer recommendations for both regulators and developers seeking to responsibly expand renewable energy development on public lands.

## **Background**

The federal government owns approximately 640 million acres of land in the United States. These lands are managed primarily by the Departments of the Interior and Agriculture through the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the US Forest Service, along with the Department of Defense. EPA estimates that around forty-four million acres have renewable energy potential. BLM specifically has identified nineteen million acres with solar potential and, as of 2005, 20.6 million acres with wind potential. BLM has further set aside 700,000 acres as “designated leasing areas” for solar energy.

The federal government also holds roughly 1.7 billion acres on the outer continental shelf. With regard to natural resources, these waters are managed primarily by the Departments of the Interior and Commerce through the Bureau of Ocean Energy Management, National Ocean and Atmospheric Administration, and National Marine Fisheries Service. BOEM has leased 1,746,522 acres of offshore waters for renewable energy development so far, although only two offshore wind projects are currently operating. Because of the significant differences between onshore and offshore siting of renewable energy, this piece focuses on regulation of onshore siting of renewable energy development on BLM lands. For further discussion of offshore siting, see EELP’s prior work on offshore wind permitting.

The current amount of public land and water designated as available for renewable energy development—several million acres—is almost certainly not enough. A 2020 report from Princeton University has calculated that, for the United States to reach the widely recommended goal of net zero greenhouse gas emissions by 2050, it will have to site renewable energy projects on roughly 145 million acres. To achieve the Biden administration’s goal of rapidly expanding renewable energy development, the Department of the Interior and other land management agencies must quickly site new projects within existing legal constraints.

## **Statutes: FLPMA and NEPA**

Development and use of public lands for renewable energy or other purposes is subject to a complex statutory and regulatory regime. For renewable energy, the most relevant statutes are the Federal Land Policy and Management Act (FLPMA) and the National Environmental Policy Act (NEPA).



BLM's siting authority is derived from FLPMA. Passed in 1976, FLPMA marked a transition in federal land management policy by repealing the Homestead Acts and directing BLM to manage public lands for multiple uses. FLPMA defines "multiple use" as "management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people." Multiple-use management therefore encompasses both energy development and conservation. Energy development is considered a valid use of public lands, and FLPMA specifically authorizes the Secretary of the Interior to grant rights-of-way for energy development, but that development must be balanced with other uses. FLPMA also requires that "the United States receive fair market value for the use of the public lands and their resources unless otherwise provided for by statute."

Along with the substantive multiple-use and market value requirements, FLPMA also gives BLM procedural requirements. For each management unit of land, BLM must create a Land Use Plan (LUP). When developing the plan, BLM must solicit and respond to public comment, and consider a number of planning criteria laid out by regulation. After BLM finalizes an LUP, all subsequent actions taken in that unit must be consistent with the LUP. For renewable energy development, this means that some development may be restricted by past LUPs. LUPs are periodically revised and can be amended, but doing so requires public comment periods and other procedural steps that slow down the permitting and siting process. If BLM takes actions contrary to applicable LUPs, it can be subject to suit under the Administrative Procedure Act.

NEPA also restricts BLM's actions. NEPA requires federal agencies to examine and disclose the potential environmental impacts of certain proposed actions. Depending on the proposed action, federal agencies prepare environmental impact statements (EISs), environmental assessments (EAs), or decision memos explaining their decision-making process, describing possible impacts, and considering alternatives to the proposed action. Some actions considered to be consistently low impact are categorically excluded from in-depth NEPA analysis.

Developing an LUP is subject to NEPA, and usually requires an EIS. That EIS must discuss the potential environmental impacts of managing the land in accordance with the proposed plan, as well as other options BLM considered. After the plan is finalized, NEPA may also apply to specific actions within the plan, like the siting of a specific development project. For example, if a developer proposes a solar array, building that array must be consistent with the LUP, and BLM may also have to prepare an EA considering whether that particular array would have significant environmental impacts.

The NEPA process can be streamlined through "tiering," whereby agencies promulgate broad, "programmatic" EISs (PEISs) that consider the impacts of commonly recurring agency actions (e.g., siting renewable energy developments within pre-defined areas). Agency



officials considering specific applications or projects can then “tier” their environmental analysis to the PEIS by reference, and avoid duplicative work. Tiering does not eliminate the need for environmental analysis, but can reduce the amount of paperwork required for a particular project. BLM has PEISs for both solar and wind energy development on public lands, which are discussed below.

Other statutes are also relevant, but are less restrictive in terms of siting or permitting requirements. The Energy Policy Act of 2005 included provisions encouraging renewable energy development on public lands, but those provisions expired in 2015. The Mineral Leasing Act authorizes the Secretary of the Interior to grant rights-of-way on public lands for energy development, but that authority is limited to oil and gas infrastructure.

### **The 2016 Wind and Solar Rule**

BLM created a competitive leasing program for solar and wind development on public lands in 2016 by amending its regulations implementing FLPMA (the 2016 Rule). Along with updating application processes, rents, fees, and other administrative matters, the BLM’s program restructured how renewable energy projects are sited. Under the current regulations, BLM has designated three categories of land for renewable energy development: excluded areas, designated leasing areas (DLAs), and variance areas. Renewable energy development is barred in excluded areas, permitted in variance areas, and highly incentivized in DLAs.

Excluded areas are unavailable for solar or wind development. These areas include wilderness and wilderness study areas, critical habitat for endangered and threatened species, and areas with existing rights-of-way. Excluded areas may be different for solar and wind, especially because solar has high direct land impacts whereas wind’s direct land impact is limited to turbine bases, access, and construction.

DLAs are areas that BLM has identified as having both high potential for solar or wind development, and having few or no likely resource conflicts like endangered species or overlapping rights-of-way. There are currently no DLAs for wind energy. Existing solar DLAs include:

- Solar Energy Zones (SEZs) in California Colorado, Arizona, and New Mexico that are identified in the solar PEIS discussed below;
- Renewable Energy Development Areas (REDAs) in Arizona identified in the Restoration Design Energy Project; and
- Development Focus Areas (DFAs) in California identified in the Desert Renewable Energy Conservation Plan (DRECP).



The 2016 Rule allows BLM to establish new DLAs through BLM's land-use planning processes, depending on the social and economic impacts, environmental impacts, health and safety hazards, and other criteria. Land-use planning documents also have processes for creating new DLAs. The 2012 solar PEIS discussed below includes a process for BLM to designate new SEZs. Specifically, under the solar PEIS, new SEZs (which are DLAs under the 2016 Rule) should (1) be large areas suitable for solar development, (2) be where solar development is economically and technically feasible, (3) have good potential access to transmission systems, and (4) have generally low resource conflict. The 2005 wind PEIS did not set out specific processes for establishing wind DLAs. The 2016 Rule, however, expressly anticipated using similar processes to the solar PEIS's to establish wind DLAs in the future.

Variance areas are areas that are neither excluded from development nor identified as DLAs. Land in variance areas are open for wind and solar development, but do not offer the same incentives as DLAs.

The permitting and siting processes for renewable energy differ depending on whether they are taking place inside or outside a DLA. The regulations refer to rights-of-way granted competitively within DLAs as "leases," and rights-of-way granted noncompetitively or outside DLAs as "grants." In both cases, BLM may offer lease/grant auctions on its own initiative or upon application by a developer.

Within DLAs, BLM offers leases through competitive bidding processes. There is a five-dollar-per-acre nomination fee, and BLM awards the lease after an applicant wins the competitive auction. Bidders in DLAs may qualify for variable offsets, which are a form of bidding credit that incentivize developers to propose desirable projects. Variable offsets may be based on having preexisting power purchase or interconnection agreements, using particular generation technologies, identified environmental benefits or impact mitigation strategies, holding grants or leases on nearby parcels, and other factors. Variable offsets can reduce the amount paid by a developer by up to twenty percent. (For example, a developer bidding \$10,000 with a twenty-percent offset could beat a \$9000 bid at auction, but would only pay \$8000.) After BLM awards the lease, the NEPA process is expedited because the environmental analysis was already performed as part of a programmatic EIS. After NEPA tiering and any required site-specific analysis is complete, construction of the project may begin.

Outside DLAs, BLM may offer grants through competitive auctions or noncompetitive sales depending on whether competition exists. There is a higher fifteen-dollar-per-acre application fee (compared to the five-dollar-per-acre fee within DLAs). Whereas applicants within DLAs are awarded their lease upon winning the auction, applicants outside DLAs are only granted priority status upon winning the auction, and must then conduct an



environmental analysis. Only after NEPA review is concluded can developers be formally awarded their lease outside DLAs.

After a lease or grant is issued, there are other incentives that apply to developers within DLAs. For example, there are standardized bonding requirements for projects within DLAs because environmental analysis has already revealed a low probability of negative environmental impacts. There is also a delayed phase-in of the capacity fee (a fee based on the total capacity of the project and market factors) for projects in DLAs. Capacity fees for DLA projects phase in over ten years, while fees for projects outside DLAs phase in over three years.

### **Programmatic EISs: Solar and Wind**

BLM has produced two PEISs addressing renewable energy development under NEPA, one each for wind and solar. The purpose of these PEISs is to complete the bulk of required environmental analysis for energy projects ahead of time so that each individual project can tier to the PEIS. Some site-specific analysis may still be required. The wind PEIS was published in 2005, and the solar PEIS was published in 2012. Each PEIS was accompanied by a Record of Decision (ROD) implementing the PEIS's preferred alternative. Among other things, the RODs amended several BLM land-use plans established under FLPMA.

The solar PEIS explored potential impacts of utility-scale solar generation (over twenty megawatts) through concentrated solar power or photovoltaic systems on public lands in California, Nevada, Utah, Colorado, Arizona, and New Mexico. The final PEIS and ROD created seventeen SEZs, now increased to nineteen. The Agua Caliente SEZ was added through the Restoration Design Energy Project, and the West Chocolate Mountains SEZ was added through the Desert Renewable Energy Conservation Plan, which was a collaborative effort between federal and California state agencies (and incorporates wind and geothermal along with solar). The Western Solar Plan and PEIS established criteria for identifying and designating new SEZs.

The wind PEIS explored potential impacts of utility-scale wind generation in all Western states with lands managed by BLM except Alaska. The PEIS identified 20.6 million acres of public lands with wind energy development potential, but did not designate any specific areas that are now considered DLAs under the 2016 Rule. (By contrast, the 2016 Rule did designate the SEZs created by the solar PEIS as DLAs.) The ROD accompanying the wind PEIS created BLM's Wind Energy Development Program, and amended forty-eight BLM LUPs. Along with identifying areas with high wind energy potential, the wind PEIS and ROD established best management practices for wind development on BLM land. The PEIS also incorporated environmental analysis that individual projects can tier to in combination with site-specific analysis.



## Recent Developments

Since the 2016 Rule and earlier PEISs were published, wind and solar development have continued to expand on public lands, albeit at a slower pace under the Trump administration than under the Obama administration. There have been mixed reactions to the 2016 Rule. A representative of the American Wind Energy Association, an industry group, argued that the 2016 Rule disadvantaged wind developers because the rule incentivized development within solar DLAs without designating any wind DLAs. But this critique may be overstated. While the rule may put wind at a relative competitive disadvantage to solar, the rule did not add any substantive obstacles to wind development on public lands and did create pathways for BLM to create wind DLAs in the future. Dustin Mulvaney, an environmental studies professor at San Jose State University has said that “there’s no evidence that the time it takes for the land bureau to conduct a NEPA analysis and permit a project has proven to be a meaningful obstacle to solar and wind development on federal lands.”

Renewable energy permitting and siting on public lands has continued into the Biden Administration. BLM released the final ROD allowing the 350-megawatt Crimson Solar Project in California to go forward on May 5, 2021. The project will cover 2000 acres in an SEZ identified by the solar PEIS and a DFA designated by the DRECP. The EIS and ROD for the Crimson Solar Project relied in part on the 2012 solar PEIS.

BLM is also currently conducting an environmental analysis for the Oberon Solar Project, also located in the DRECP development focus area. The project as currently proposed would cover about 4700 acres of federal land and generate up to 500 megawatts of electricity. The Oberon project may require an amendment to the DRECP, however, because the project may affect sensitive ecosystems near Joshua Tree National Park. The conservation provisions of the DRECP may therefore prove to be stumbling blocks for solar development in that area.

At the same time, some states and local communities have pushed back on increased renewable energy development in their areas. A bill in the Kansas legislature, for example, would require wind turbines to be sited at least one mile from any neighboring properties, effectively preventing them in most areas and “end[ing] the renewable energy industry in Kansas,” according to one industry advocate. Over the past several years, Kansas has been a major area for renewable energy development alongside Texas and New York. Renewable energy siting is also often hindered by local opposition manifest through lawsuits, local ordinances, or state-level restrictions. The Sabin Center for Climate Change Law at Columbia Law School compiled local laws of this type in a February 2021 report.



## Next Steps and Recommendations for the Biden Administration

To meet its renewable energy production goals, the Biden administration will have to tap every resource available, including public lands. As noted above, the 2020 Princeton report calculated that to reach net-zero emissions by 2050, the United States will need to site 145 million acres or more of solar and wind energy projects. That need far outstrips the current supply of available land. The United States will also need to triple its transmission capacity by 2050 to keep pace with expanded renewable energy generation.

Of course, much of the land eventually used for renewable energy production will be private. Wind generation is especially appealing to private landowners because it is compatible with other land uses. Agriculture or grazing can occur around turbine bases, which only directly occupy roughly ten percent of the total land required for the project. Wind production can also occur offshore on publicly owned waters managed by BOEM alongside lands managed by BLM. Offshore wind production has more potential space available but faces its own set of siting challenges such as proximity to transmission lines and whether floating or fixed turbines are needed.

Nevertheless, public lands remain a crucial resource for siting renewable energy development, particularly large solar arrays that are less likely to be sited on private land. BLM under the Obama administration took great strides toward expanding renewable energy development through the 2016 Wind and Solar Rule and solar PEIS discussed above. For the Biden administration, this means that much of the rulemaking legwork has already been done. For the benefits of that work to come to fruition, however, the Biden BLM must follow through and expand on the commitments made in the 2016 Rule, and private developers must recognize and take advantage of the incentives for development within DLAs.

To meet the president's renewable energy commitments, the Biden BLM should take a twofold approach of (1) granting rights-of-way to individual projects as efficiently as possible and (2) prioritizing the identification and designation of new DLAs, including both SEZs and approving the first wind DLAs. First, BLM must permit and site individual projects efficiently. Even in pre-approved areas, this process can be hindered by ecological or social concerns, as demonstrated by the Oberon Solar Project in California. When these concerns arise, BLM should take a proactive, collaborative approach to work with the developers and other stakeholders to determine whether compensatory mitigation, relocation, or other strategies might enable the project to continue. Although collaboration can seem at first to be slower or less efficient, it can also lead to more durable outcomes and more cooperative relationships between repeat players in negotiations. By bringing large developers, industry groups, state agencies, and conservation groups together, BLM can create long-term capacity to efficiently address stumbling blocks for ecologically sound renewable energy



development. The DRECP, a combined effort of state and federal agencies, shows how these collaborative efforts can succeed.

When granting rights-of-way to individual projects, BLM should continue relying on and updating the solar and wind PEISs to avoid duplicative environmental analysis. BLM may also be able to take advantage of expedited NEPA processes established by the Council on Environmental Quality's new regulations promulgated under the Trump administration. But BLM should not use these rules to circumvent core NEPA requirements, as the rule is currently being challenged and vacatur could retroactively render BLM's NEPA reviews legally inadequate.

Along with permitting individual projects, BLM should prioritize creating new SEZs and wind DLAs. As renewable energy ambitions increase and fossil fuels become even less competitive, the appetite for renewable energy generation on public lands will increase. BLM should anticipate that demand by identifying, reviewing, and designating new DLAs under the 2016 Rule. Even though current demand may not seem to merit allocating BLM resources to DLA creation, any proactive work at this point will likely pay off generously several years down the line when the deadlines of private and public green energy commitments hit, and renewable energy is at a premium. BLM should take special care to begin creating wind DLAs where possible to help encourage wind generation on public lands. BLM can also use these projects to demonstrate how wind can be relatively less impactful compared to solar, and can coexist with agriculture or livestock grazing.

Private developers will also need to work with BLM to take advantage of the incentives created by the 2016 Rule. When considering solar and wind energy projects, developers should seek first to locate those projects within DLAs. If developers proceed in those areas, they can take advantage of lower fees, expedited environmental review, and variable offsets to help reduce the financial burden of development. BLM should also consider removing the twenty-percent cap on the use of variable offsets to encourage environmentally beneficial and well-planned projects.

## **Conclusion**

Dramatic expansion of renewable energy development in the United States will require a concerted effort by federal and state agencies, developers, and conservation groups. All parties involved in the process should come to the table with a clear sense of the pressing need for renewables as indicated by Biden's January 27 executive order. By building on the administrative infrastructure of the 2016 Wind and Solar Rule and earlier programmatic EISs, BLM may be able to dramatically expand its offerings of renewable energy right-of-way leases and grants. Doing so will be critical to meeting Biden's renewable energy goals and mitigating the acceleration of climate change in the coming years.



## Acronym Glossary

BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
DFA	Development Focus Area
DLA	Designated Leasing Area
DRECP	Desert Renewable Energy Conservation Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FLPMA	Federal Land Policy and Management Act
LUP	Land Use Plan
NEPA	National Environmental Policy Act
PEIS	Programmatic Environmental Impact Statement
REDA	Renewable Energy Development Area
ROD	Record of Decision
SEZ	Solar Energy Zone