



## Utilizing the Energy Resource Potential of DOE Lands

The Department of Energy (DOE) has varying degrees of responsibility for 164 sites in 32 states, including 17 national laboratories and 2.2 million acres. These lands are valuable assets among the nation's property holdings and present opportunities for future energy resource development. Monetizing these properties for commercial gain can generate income to developers, create jobs for local residents, and serve as a revenue source for DOE. In 2013, DOE asked the National Renewable Energy Laboratory (NREL) to assess the energy resource development potential on DOE lands including opportunities for oil, gas, coal, solar, wind, geothermal, biomass, and uranium. NREL conducted the analysis of renewable energy potential and contracted the Colorado School of Mines (CSM) to conduct the fossil fuel and nuclear analyses. The NREL report, published in June 2016, includes a broad analysis of the technical and economic potential of DOE sites with a more detailed analysis for some of the most promising sites.

At the request of DOE, the National Academies of Sciences, Engineering, and Medicine reviewed the NREL report in order to assess the study methodology and identify areas for further analysis. The National Academies finds that the NREL study provides valuable insights on the energy resource types that have the greatest development potential. However, the effort was severely curtailed by minimal funding and the study methodology left out approaches that might have made the results more meaningful. In particular, the NREL study missed opportunities to engage DOE site personnel and resource developers who might have helped identify important criteria for screening locations. NREL could also have taken the opportunity to learn more from stakeholders of successful energy projects that are already underway on federal lands.

The NREL report ranks sites primarily based on the levelized cost of electricity (LCOE), which does not take into account factors that might make a site too cumbersome to develop such as security restrictions, environmental issues, and the need for associated infrastructure to deliver the resource to market. This omission likely led to a different list of the top sites for renewable resource development than would have resulted if the sites were more completely characterized. Instead, the identification of top sites for energy resource develop-

ment should be guided by the criteria that developers judge as most relevant, such as the need for environmental studies or the proximity to grid infrastructure. Therefore, the National Academies recommends that *the DOE should adopt a more robust approach for ranking sites featuring early outreach to developers, use of screening criteria other than LCOE, and lessons learned at similar federal sites.* A user-friendly database of DOE lands could serve as a resource for potential energy developers by publicizing the DOE lands that are available and the known restrictions that might inhibit their development.

In view of the value of these lands, the National Academies believes that *DOE should place a higher priority on developing an accurate and actionable inventory of those DOE-owned or -controlled properties that can be leased or sold for energy development; one option for implementing this would be to establish a program management office.* This office could work with developers on property development or leasing. If sufficient funding is not available to establish an energy development office, the DOE should remain open to opportunities to allow private development of DOE lands on a case-by-case basis.

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This Consensus Study Report Highlights was prepared by the Board on Energy and Environmental Studies based on *Utilizing the Energy Resource Potential of DOE Lands* (2017), which is available for download at [nap.edu](http://nap.edu). The study was sponsored by the Department of Energy. Any opinions, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the views of the sponsors. Learn more about our work and sign up for our mailing list at [nas.edu/bees](http://nas.edu/bees).

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