

PREPARED FOR THE ARIZONA SOLAR WORKING GROUP

Mohave County Proposed Renewable Energy Development Area

Due Diligence Report

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Note about the Author

Ian Dowdy is a graduate of Arizona State University with a B.S. in Urban Planning and Masters in Business Administration. His experience in urban planning includes work for the Town of Buckeye as a planner during the housing boom of the 2000s and as a consultant on a variety of master-planned communities throughout Maricopa County. Ian has also achieved the American Institute of Certified Planners (AICP) title administered by the American Planning Association. Among other principles, the AICP certification represents a commitment to a fair and transparent planning process and an obligation to retain the public interest as first priority in any project or action. To learn more about the AICP code of ethics please visit: <http://www.planning.org/ethics/ethicscode.htm>.

About the Arizona Solar Working Group (ASWG)

The Arizona Solar Working Group (AZSWG) is composed of a variety of stakeholders representing non-governmental organizations and the solar industry, including those from the conservation arena, power utilities, solar developers, and renewable energy interest groups. The purpose of the group is to work collaboratively toward identifying and resolving potential conflicts between solar development and land conservation and to provide mutually agreeable comments to the Restoration Design Energy Project (RDEP) EIS for the Bureau of Land Management.

About the Arizona Wilderness Coalition

The mission of the Arizona Wilderness Coalition (AWC) is to protect and restore wild lands and waters throughout Arizona. A key component of this mission is to advocate for responsible and sustainable policies toward a clean energy future without compromising key wildlife habitat and opportunities for primitive and unconfined recreation. AWC also actively advocates for pragmatic new conservation measures including appropriate designations for wilderness, National Conservation Areas, and Wild & Scenic Rivers to ensure a sustainable future for coming generations of Arizonans. The Arizona Wilderness Act of 1984, Arizona Desert Wilderness Act of 1990, and the Fossil Creek Wild & Scenic River designation of 2009 are among the Arizona Wilderness Coalition's many achievements. To learn more please visit www.azwild.org.





Figure 1: The lands in and around the proposed Mohave County Renewable Energy Development Area (REDA) contain high levels of naturalness and scenic character.

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Introduction

Background

Alternative energy has long been considered a critical component of a sustainable future for the nation. Advocates have articulated the advantages of having greater energy independence and the environmentally friendly benefits that wind, solar, geothermal, and biofuels provide. In response to a growing number of applications for renewable energy development on federal lands, the Bureau of Land Management (BLM) has initiated two processes that will guide the future of solar energy on Arizona's public lands. The first is the Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Solar PEIS), which is designed to guide primarily utility scale projects on BLM lands. The Solar PEIS identifies 3.4 million acres of AZ BLM lands that would be available for solar development applications, including two Solar Energy Zones (SEZs) totaling 6,500 acres that would be priority areas for development while "limiting the required scope and effort of additional project-specific NEPA analyses."¹ The Supplement to the Draft Solar EIS also outlines procedures for identifying new SEZs, which in Arizona is likely to occur due to their currently limited number and size. The Solar PEIS, aside from its authorization and protocol for the identification of new SEZs, is outside the scope of this assessment. For more information regarding the Solar PEIS, please visit www.solareis.anl.gov.

The second solar planning process is unique to Arizona and forms the basis of this assessment. The Restoration Design Energy Project (RDEP) is intended "to conduct smart, statewide planning to foster environmentally responsible production of renewable energy and to allow the permitting of future renewable energy development projects to proceed in a more efficient and standardized manner. The RDEP would amend land use plans to identify geographic areas best suited for renewable energy, establish land reuse goals, and identify design features to protect resource values and uses."² The project utilizes a wide variety of environmental, archeological, hydrological and other constraints to screen out areas inappropriate for renewable energy development. RDEP identifies two major classifications of lands that will be available for development; the Agua Caliente SEZ in eastern Yuma County, and Renewable Energy Development Areas (REDAs) which will likely fulfill variance requirements for a subset of lands identified in the Solar PEIS. The REDA in Mohave County is one of these potential development areas and is the focus of this assessment report. The Draft EIS for RDEP provides six alternatives that identify up to 321,500 acres of BLM lands for potential renewable energy development, including three action alternatives for the designation of the Agua Caliente SEZ. A wide variety of stakeholders around the state have looked on the RDEP process with optimism, hoping that it can both encourage responsible solar development while limiting most of the conflicts to wildlands and wildlife habitat that have hindered or prevented other projects from coming to fruition.

Purpose and Intent

The intent of this report is to evaluate stakeholder perspectives, opportunities, and constraints regarding the proposed REDA in Mohave County and to communicate these findings to the Arizona Solar Working Group (AZSWG) and member representatives. Research of the Mohave County REDA was accomplished by utilizing a diverse range of sources, including interviews with a variety of stakeholders to identify, quantify, and analyze their perspectives; the goal is to provide a transparent and thorough understanding of the site conditions and constraints. Information gathered is provided within this report and appendices for thorough examination. Ideally, the critical merits and concerns of the Mohave County REDA can be understood after reading this document, allowing the Arizona Solar Working Group (AZSWG) to reach a defensible conclusion regarding the viability of responsible solar development on the subject property. Additionally, this assessment analyzes the effectiveness of RDEP's screening process that removes potential conflict areas from the REDA portfolio.

¹ Supplement to the Draft Solar PEIS, Chapter 2-20

² Draft RDEP EIS, Chapter ES-2

Arizona State Director Ray Suazo, in his letter introducing the RDEP EIS states that the Restoration Design Energy Project aims to “amend BLM land use plans to identify lands across Arizona that may be suitable for renewable energy development and to establish a baseline set of environmental protection measures for such projects. The BLM is proposing to identify Renewable Energy Development Areas that may be suitable for the development of utility-or distributed-scale solar and wind facilities³.” With this stated intention, an analysis of the Mohave REDA, which represents the largest contiguous REDA on BLM lands, for its renewable energy development suitability may provide a good understanding of the overall likelihood that other REDAs throughout the state may also be appropriate. In short: This analysis of the Mohave REDA will serve as a test of the screening criteria that was developed to ensure that lands with high environmental, social, recreation, cultural, or other values are not subjected to development.

REDA Lands Assessed for Potential Solar Energy Zone (SEZ)

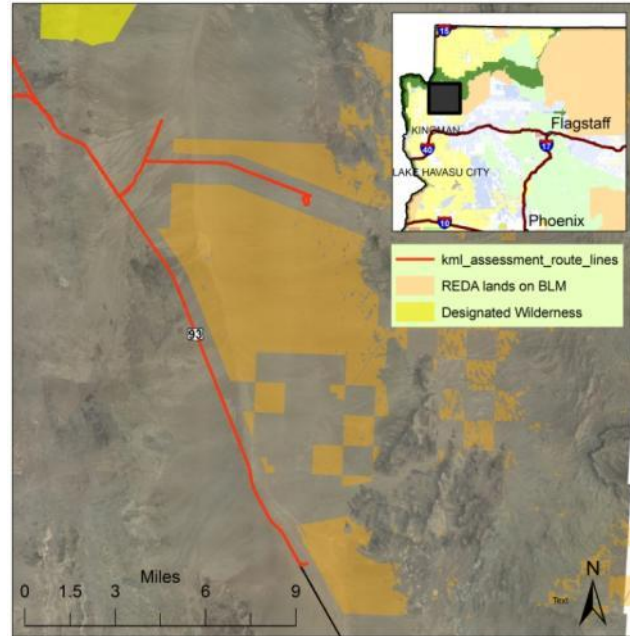


Figure 2: The Mohave REDA is in two major contiguous areas including approximately 20,000 acres in the northern area and 4,300 acres in the southern area. The red line shows the route that was taken on a site visit.

<i>Stakeholders Contacted Regarding Agua Caliente SEZ</i>	<i>Name</i>
Arizona Game and Fish Department	Ginger Ritter, Trevor Buhr
Grand Canyon Wildlands Council	Kim Crumbo
Mohave County Planning Department	Kevin Davidson, Christine Ballard, John Montgomery
Defenders of Wildlife	Matt Clark
Sierra Club	Sandy Bahr
Lake Mead National Recreation Area	Jim Holland
Clean Line Energy	Keith Sparks
BLM	Kathy Pedrick, Kevin Grove
Archaeology Southwest	Andy Laurenzi
Trust for Historic Preservation	Rebecca Schwendler
Grand Canyon Park	John Reber
BP Energy	Todd Eagleston
Hualapai Tribe	Jack Ehrhardt
Western Area Power Administration	Todd Rhoades

Table 1: List of stakeholders contacted regarding the proposed Mohave REDA.

Methodology

A list of major stakeholder groups was compiled with input from the AZSWG and each was approached to discuss aspects of the Mohave County REDA. Table 1 contains a list of those that were solicited for input, although not all

³ (Bureau of Land Management, 2012, p. 1)

returned phone calls or had substantive information to provide. Detailed notes of these conversations are included in Appendix II.

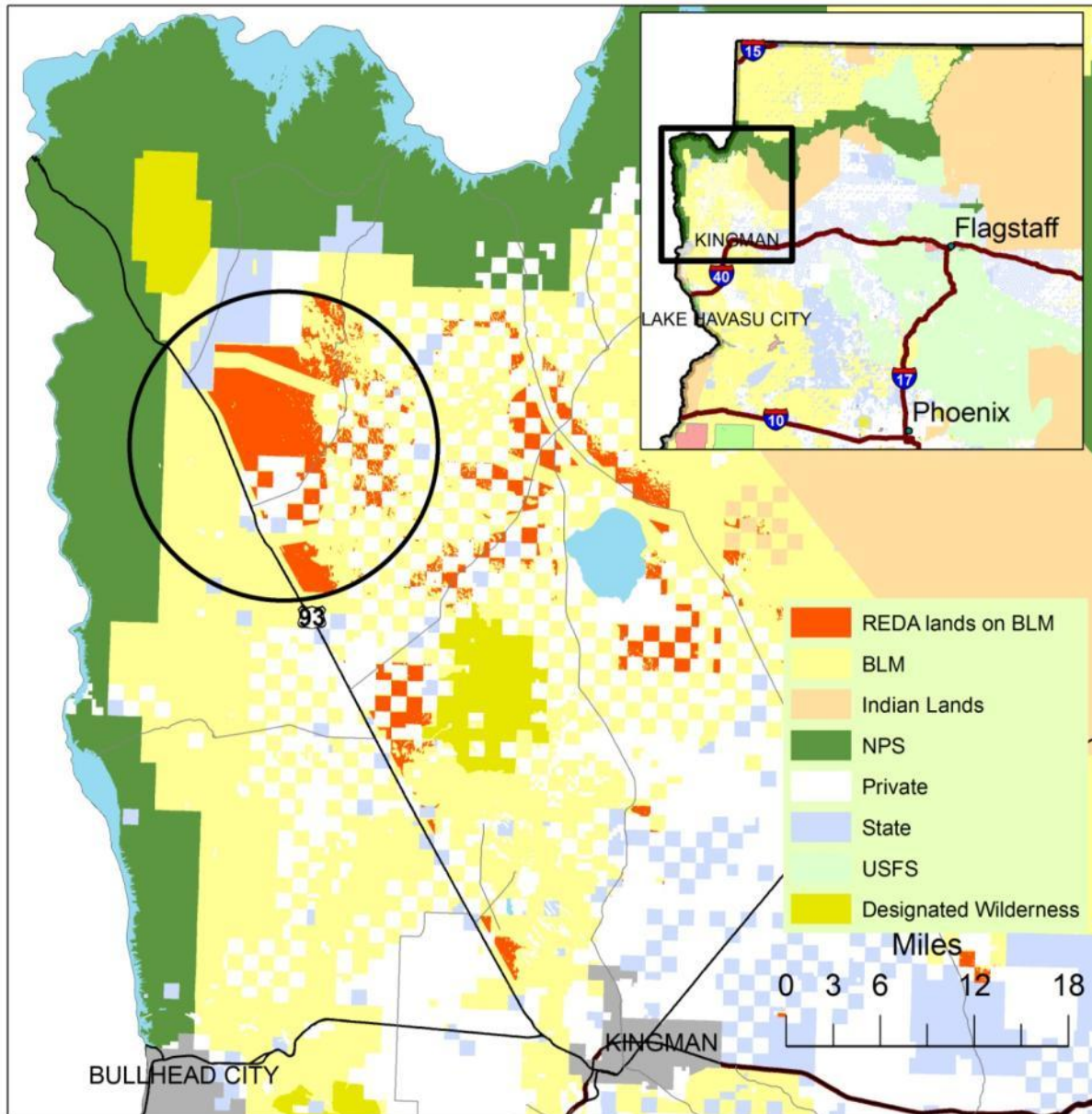


Figure 3: Mohave REDA lands subject to this evaluation.

The Proposed Mohave REDA

For purposes of this report, the evaluation of land in the Renewable Energy Development Area (REDA) in Mohave County (Mohave REDA) comprises approximately 31,000 acres of BLM lands arranged in two disjunctive areas. The north unit is approximately 22,000 acres, with the smaller south unit totaling 4,300 acres. Although there are significant private and Arizona state lands identified as REDA in the vicinity of this subject property, they will not be evaluated in this report for a variety of reasons. The Mohave REDA is virtually identical in four of the RDEP alternatives including Alternatives 1, 2, 4, and 6. In Alternatives 3 and 5 the lands have not been included as they do not meet the criteria established for consideration. In Alternative 3 they are not close enough to load centers

and in Alternative 5 they are not subject to disposal⁴. For purposes of this evaluation, the Mohave REDA as is displayed in Alternative 6 will be the focus of these due diligence efforts as the test of the success of the RDEP screening process (Figure 3).

Evaluation

Site Conditions

The Mohave REDA lands are located in unincorporated and rural areas of Mohave County, situated between the US-93 on the west, White Hills on the east, lands managed by the Arizona State Land Department (ASLD) and Bureau of Reclamation (BOR) on the north, and the White Hills on the south. The City of Kingman is located approximately 45 miles south of the site, while Boulder City lies 35 miles to the northwest (see Figure 3). The vast majority of the Mohave REDA is undeveloped desert of the Mohave Basin and Range vegetative community characterized by creosote and bursage shrubs and low-lying plant communities. Unlike the Sonoran Desert, this region contains few trees save for the iconic Joshua tree, broadly scattered across the landscape. (See photos in Appendix I) Generally the topography is flat with gentle slopes down toward the Detrital Wash that drains the area into Lake Mead. A visual assessment showed that the lands have moderate to high scenic character and few encumbrances save for a major transmission line and a low density of unimproved roads. There are signs of cattle grazing in the area, concentrated near the large xeroriparian area of Detrital Wash. Generally the site is in excellent condition from an ecological perspective, providing habitat for a variety of species including antelope, Sonoran desert tortoise, mule deer, and other species. Fragmentation has occurred as a result of the electric transmission lines, a few dirt roads, an aggregate operation, and some developed thoroughfares, though overall the landscape retains a level of naturalness that compares to some of the most scenic viewsheds in Arizona (Figure 1).

BP Wind Energy

Lands to the north of the proposed Mohave REDA are currently subject to an application by BP Wind Energy to develop a large wind-powered generation facility. A meeting with Mohave County Planning officials revealed that a good portion, approximately two-thirds of the REDA, is a part of this preexisting application. This facility is proposed to generate between 400 and 500MW at full capacity and is moving forward with the required approvals before development. The project plan is to connect to either the 345kv Liberty-Mead or the 500kv Mead-Phoenix transmission line with a developed substation on the site to accommodate the connection. The complete plan of development made available on the BLM website is included in Appendix II. The impacts of this development on the REDA may be significant in limiting or removing the possibility of large-scale solar development. If built, solar may be interspersed between wind turbines or confined to the south unit or lands encumbered by the Detrital

REDA Lands Assessed for Potential Solar Energy Zone (SEZ)

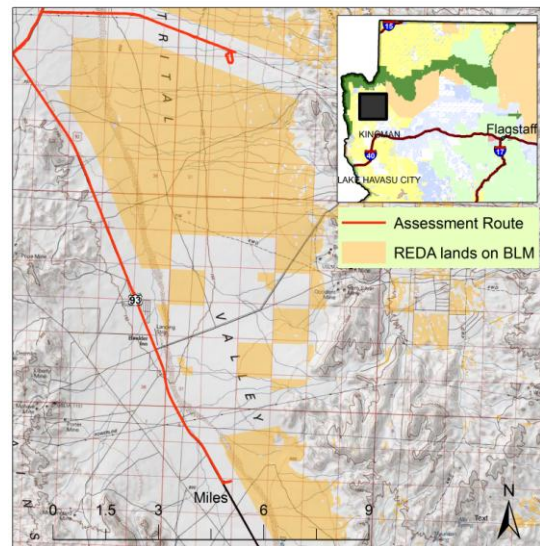


Figure 4: The topography of the proposed Mohave REDA is very flat sloping toward the Detrital Wash on the west edge of the site.

⁴ There are some BLM lands near to the Mohave REDA that are a part of Alternative 5, situated in a checkerboard pattern and surrounded completely by private lands. As this land totals approximately 1,200 acres and is not a part of the two large contiguous lands that comprise the majority of the REDA, it has not been considered as a part of this evaluation.

wash. The Draft EIS for the BP Wind Energy project is expected to be released to the public in late spring. The project may be in operation as soon as late 2013.

In a discussion with Kathy Pedrick of the Arizona BLM office, the BP Wind Energy project will retain permitting precedence as it precedes the RDEP process. The BLM has not determined how to best collocate and/or accommodate solar development and wind energy on the same site although there could be the possibility of such practices in the future.⁵ BP has not considered siting solar development in the project but recognizes the possibility for solar energy to complement the wind facility.⁶

Environmental

The evaluation of the Mohave REDA site focuses on known or potential conflicts with environmental and cultural resources including wildlife habitat, known special status species, and known or probable cultural resource values.



Figure 5: The approximate boundary of the proposed BP wind energy site (black line) over the proposed REDA (gray shading). (Staff, 2012)

Proximity to Protected Areas

The proposed Mohave REDA is directly between two wilderness areas which provide valuable wildlife habitat and opportunities for primitive and unconfined recreation in Mohave County. The Mt. Wilson wilderness is only five miles to the northwest of the edge of the proposed REDA while the Mt. Tipton Wilderness is approximately 10 miles to the southeast. The location and proximity of these important conservation lands should be considered as the REDA lands could contribute wildlife connectivity, scenic values, and other features to the wilderness experience.

Wildlife Habitat

Wildlife experts with knowledge of the lands in the Mohave REDA were interviewed to discover any likely or potential conflicts between solar development and wildlife habitat. No significant conflicts were reported although the following known wildlife activity has been documented including:

- Desert tortoise has been documented in the mountainous areas to the north of the REDA. These animals are likely of the Sonoran subspecies and are unlikely to be in the developable REDA area.⁷
- Periodically, antelope are seen in the REDA area, although the area is not considered high quality habitat. The only concern raised was in regard to the necessity of a wildlife corridor around the Detrital wash to accommodate passage of animals.⁸
- In areas near the Lake Mead National Recreation Area, bald eagles are known to winter and may be impacted by wind generation developments although the likelihood and degree of such events are difficult to quantify.⁹
- The Arizona Game and Fish Department has provided a list of species that may be within the Mohave REDA as well as those likely to be within five miles of the site. This list is included in Appendix II.¹⁰

⁵ (Pedrick, 2012) As a comment to this report Ms. Pedrick noted: "It would not be the responsibility of the BLM to determine how to collocate wind and solar. If a proponent submitted a proposal we would evaluate it as part of the project specific process."

⁶ (Eagleston, 2012)

⁷ (Eagleston, 2012) (Grove, 2012) (Staff, 2012)

⁸ (Ritter, 2012) (Buhr, 2012)

⁹ (Holland, Park Planner, NPS, 2012)

¹⁰ (Ritter, 2012)

Based on interviews and topical review of known wildlife in proximity to the Mohave REDA, development of the area for its solar potential is not expected to have significant impacts on species of recreational or economic value, nor on species of special concern.

Historic and Cultural

There are no known historic or cultural resources within the proposed Mohave REDA although more research should be performed prior to development. The Hualapai tribe, the closest Native American stakeholder group, has not returned phone calls or emails that solicited input.

Market and Viability

The viability of alternative energy generation facilities is incredibly hard to determine except by experts in the field. For purposes of this assessment the following have been considered: proximity to transmission, substation, and possible market potential.

Proximity to Transmission

Two transmission lines are currently in operation through the northern portion of the Mohave REDA including the Liberty-Mead 345kv line, and the Mead-Phoenix 500kv facility. The proposed BP Wind Energy project has an interconnection request for both lines. The available capacity on either of the lines is unknown at this time.

The planned Centennial West transmission line, a 500kv facility, is proposed to go through the southern portion of the REDA, allowing up to 500kv of energy capacity to facilities in the area. Keith Sparks of Clean Line Energy seemed friendly toward accommodating transmission needs for facilities in the Mohave REDA area.¹¹

Proximity to Substation

There is no current substation within close proximity to the Mohave REDA. The proposed BP Wind Energy project proposes to develop a substation adjacent to the existing transmission corridor on the northern edge of the REDA.

Market Potential

Market potential for solar energy from the Mohave REDA is difficult to ascertain at this time.

Regulatory Framework

Planning and Zoning

Mohave County seems to have positioned itself to accommodate utility-scale alternative energy projects. They have developed a process to facilitate development and have several projects in various stages of the process, from entitlements to operation.

The proposed Mohave REDA is entirely within the jurisdiction of Mohave County and is not within or adjacent to an incorporated area, nor is it within the planning area of any municipality. The land is currently designated Rural Development Area in the Mohave County Comprehensive Planning and zoned under a rural designation. According to the staff of the Mohave County Planning Department, regardless of the land use and zoning designation, an application for minor Comprehensive Plan Amendment to a Renewable Energy overlay district and a rezoning application to an Energy Overlay Zone will be required prior to the development of any alternative energy facility. This process is expedited to take approximately 120 days including at least one neighborhood meeting and a public hearing before the Board of Supervisors.¹²

¹¹ (Sparks, 2012)

¹² (Staff, 2012)

retained hope that should the RDEP be approved, there could be a future process whereby a Solar Energy Zone (SEZ) may be established in the REDA, adding to what some feel is a deficient SEZ portfolio in Arizona. With the discovery of the size and scope of the BP Wind Energy project, it may be that the Mohave REDA will not have the size and scale to be recommended for a SEZ, although there is still adequate land in the REDA to accommodate viable solar energy development, including the 4,300 acre southeastern parcel, about 2,500 acres directly south of the BP Wind Energy project, and some lands around the Detrital wash.

Recommendations

Mitigation

Although this evaluation has discovered no significant concern regarding environmental issues in the Mohave REDA, the landscape is of high natural and scenic character and retains some value for wildlife connectivity and habitat. Mitigation measures should be implemented as the site develops to preserve key wildlife corridors, slopes, and the Detrital wash.

Collocation of Energy Facilities

The presence of the BP Wind Energy project, which may appear to be a hindrance to large-scale solar energy development, may provide an opportunity for the collocation of wind and solar facilities which may have benefits to balancing energy risk and load to customers. The BLM should consider policies that would facilitate the sharing of REDA and SEZ sites between different methods of renewable energy generation.

Conclusion

The evaluation of the Mohave REDA has provided valuable insight into the likelihood that much of the 230,000 acres identified by the RDEP EIS are potentially suitable for renewable energy development. No major environmental conflicts have been found within the REDA, suggesting a successful application of screens that removed high or moderate conflict areas. While these findings may provide some comfort to Arizonans that are concerned about the loss of critical habitat and ecological resources throughout the state, each individual site should receive careful scrutiny prior to development to ensure site appropriateness and to evaluate mitigation measures that should be implemented to limit impacts. Although much of the land identified as REDA areas in the RDEP EIS retain high natural character, there should still be an emphasis on lands that are previously disturbed to limit unforeseen effects on wildlife, vistas and recreation opportunities on public lands throughout Arizona. If the Mohave REDA is any indicator, the RDEP process has been successful at identifying areas that have few known environmental conflicts, leaving the potential development of renewable energy on public lands in a stronger position to move forward.

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