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EXECUTIVE SUMMARY

ES.1 OVERVIEW

Renewable Arizona Fast Facts

Suitable solar resource potential: 57% of the state

Suitable wind resource potential: 2% of the state

By 2025, at least 15 percent of Arizona's electrical demand will be met with renewable energy

Total BLM-administered lands in Arizona: 12.2 million acres

The Restoration Design Energy Project (RDEP) is a project of BLM Arizona that supports the Secretary of the Interior's goals to build America's new energy future and to protect and restore treasured landscapes. Arizona has a wealth of renewable energy resources, especially for those technologies that rely on solar radiation and wind (Black and Veatch 2007). The United States (U.S.) Department of the Interior (DOI), Bureau of Land Management (BLM) manages over 12 million surface acres of public lands in Arizona. Wind and solar projects on public lands are administered by the BLM lands and realty program through right-of-way (ROW) grants in accordance with land use plans.

The BLM proposes to identify Renewable Energy Development Areas (REDAs) and a Solar Energy Zone (SEZ) for Arizona that include disturbed sites such as brownfields, landfills, retired agricultural lands, or abandoned mines, and lands with low resource sensitivity and few environmental conflicts. The BLM also proposes to establish management actions, design features, and land tenure and reuse policies applicable to solar and wind energy development on BLM-administered lands in Arizona. The REDAs would identify where solar and wind energy development is likely to be compatible with resource objectives, and the management actions and design features would bring consistency and efficiency to the BLM's authorization process. In addition, the BLM is proposing to identify a SEZ for utility-scale solar development. BLM resource management plans (RMPs) in Arizona would be amended to adopt these findings and measures.

BLM Arizona has prepared this environmental impact statement (EIS) to identify which lands across Arizona are most suitable for the development of renewable energy and to consider establishing a baseline set of environmental protection measures that would apply to such projects on

public lands. This EIS evaluates the potential environmental, social, and economic effects resulting from this proposed action in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality's regulations for implementing NEPA (40 Code of Federal Regulations Parts 1500-1508), and applicable DOI and BLM authorities.

ES.2 PURPOSE AND NEED FOR THE RDEP

A growing demand for energy in the western U.S. combined with applicable laws, orders, and policies that encourage the DOI and the BLM to facilitate renewable energy siting and production has created a need for BLM Arizona to consider updating and amending their land use plans. Siting renewable energy projects is complex and multifaceted, requiring the consideration of many variables, including topography, distance to transmission and load, land ownership patterns and availability, tribal concerns, and environmental and cultural resource constraints. Current land use plans generally do not address these factors or provide guidance on where development should occur. Therefore, under current plans, processing of applications can take a long time to adequately evaluate the site location, to conduct environmental and cultural reviews, to develop appropriate mitigation measures, to effectively collaborate with stakeholders, and, in some cases, to prepare a land use plan amendment.

Renewable energy comes from natural resources whose supplies are regenerative and virtually inexhaustible, including sunshine, wind, water, vegetation, and the heat of the earth. The Restoration Design Energy Project focuses on solar and wind resources.

The purpose of the RDEP is 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.

While RDEP would further the BLM's ability to meet the mandates of Executive Order (EO) 13212, Actions to Expedite Energy-Related Projects (Federal Register, Volume 66, page 28357, May 22, 2001) and the Energy Policy Action of 2005, it also has been designed to meet the requirements of Secretarial Order 3285A1 related to identifying areas best suited for renewable energy (Secretary of the Interior 2010).

ES.3 THE RDEP'S RELATIONSHIP TO NATIONAL AND STATEWIDE BLM POLICIES AND PROGRAMS

Numerous federal and state BLM initiatives are currently underway to promote renewable energy development.

ES.3.1 Solar Energy Development Programmatic EIS

The Solar Energy Development Programmatic EIS (PEIS), currently being prepared by the U.S. Department of Energy (DOE) and the BLM, will assess environmental impacts associated with the development and implementation

Solar PEIS Proposed SEZs

of agency-specific programs that would facilitate environmentally responsible, utility-scale solar energy development in six western states: Arizona, California, Colorado, New Mexico, Nevada, and Utah. There are two proposed SEZs in Arizona being carried forward in the Solar PEIS– the Brenda SEZ and the Gillespie SEZ. The two proposed SEZs in Arizona encompass 6,465 acres. As the Solar PEIS is finalized, it may modify the boundaries of the proposed SEZs or remove them, but no new SEZs will be proposed through the Solar PEIS. The Record of Decision (ROD) for the Solar PEIS is anticipated for September 2012.

The Solar PEIS effort and the RDEP are being closely coordinated as both are related to making land use planning decisions for the most suitable areas to develop solar energy facilities. The RDEP is a "step down" from the national level to focus on specific issues and areas in Arizona. Upon issuance of the ROD for the Solar PEIS, land use plans in Arizona will be amended to incorporate the land use plan decisions described above. The RDEP effort seeks to further refine and build upon the decisions being analyzed in the Solar PEIS for utility-scale solar, including the following:

- The RDEP will identify those areas most suitable for renewable energy development within the variance areas identified by the Solar PEIS (i.e., a REDA). Identification of a REDA could fulfill the variance process requirements proposed in variance areas through the Supplement to the Draft Solar PEIS (BLM and DOE 2011). This would allow utility-scale solar energy developers a more streamlined process in these highly suitable areas.
- The RDEP would refine and build upon the design features being proposed in the Solar PEIS for conditions relevant to wind and solar development in Arizona.
- In accordance with the identification protocols for new SEZs (as identified in the Supplement to the Draft Solar PEIS), the RDEP is proposing and analyzing an additional SEZ for Arizona.

A summary of the scope of each of the two projects is provided in **Table ES-1**, Comparison of the Scope of the Solar PEIS and the RDEP.

Solar radiation may be harnessed and transformed to usable energy, such as heat and electricity. Two basic solar energy technologies that produce electrical power for commercial applications are:

- *Concentrating solar power (CSP) systems, which use mirrors to concentrate sunlight onto receivers that convert it to heat used to drive a generator via a steam turbine or heat engine to produce electricity*
- *Photovoltaic (PV) systems, which use solar cells made of semiconductor materials to capture the energy in sunlight and convert it directly into electricity*

Table ES-1
Comparison of the Scope of the Solar PEIS and the RDEP

Solar PEIS	RDEP[1]
Applies to: Utility-scale solar energy developments (≥20 MW) ONLY	Applies to: Solar-based energy technologies and wind energy technologies
• Allocations: - Exclusion Areas - Variance Areas (Variance Process required) - SEZs – two in Arizona: ▪ Brenda ▪ Gillespie • Solar Energy Development Program Policies & Procedures • Solar Energy Development Program Design Features	• Identify REDAs within Variance Areas • Identify the Agua Caliente SEZ • Wind Energy Program policies and procedures from the Wind Energy Program ROD • Goals, Management Actions, and Design Features for solar and wind renewable energy development regardless of scale, land reuse, and remediation of disturbed sites

ES.3.2 Wind Programmatic EIS

Wind power utilizes turbines to convert wind to electricity. The blades of a wind turbine turn in the moving air and power an electric generator that supplies an electric current.

In 2005, the BLM prepared a comprehensive PEIS to guide wind energy development in 11 western states: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming (BLM 2005b). The U.S. DOE cooperated in the preparation of the Wind PEIS in support of the BLM's proposed action. The decision established policies and BMPs for the administration of wind energy development activities and established minimum requirements for mitigation measures. Fifty-two BLM land use plans were amended to adopt the new program; no plans in Arizona were amended as a result of the Wind PEIS. The RDEP analyzes the Wind Program policies, BMPs, and land use plan decisions relevant to Arizona and will decide whether to adopt the policies, BMPs, and land use plan decisions for Arizona. The RDEP will identify areas best suited for wind energy development for inclusion in the REDAs and will consider any additional design features, management actions, and/or BMPs to include for wind energy projects in Arizona.

ES.3.3 BLM Arizona Strategic Goals

Energy Strategy

Recent interest in renewable energy development in Arizona, and in the West in general, has led to a large interest in the use of public lands for siting of renewable energy projects. BLM Arizona has developed a BLM Arizona Statewide Energy Strategy to help manage the need for renewable energy locations on public lands, including processing of existing

[1] The ROD resulting from the Solar PEIS will amend Arizona land use plans for utility-scale solar energy development. All of the decisions included in the Solar PEIS ROD would apply and would be implemented.

applications, participation in the Solar PEIS, and the development of the RDEP. Some of the goals of the Energy Strategy include participating with state and private entities to develop renewable energy strategies for all of Arizona, responsively processing renewable energy applications, and developing a plan for renewable energy developments in an environmentally responsible manner.

Other BLM Arizona Strategies

In addition to the Energy Strategy, BLM Arizona has established other strategies to provide long-term direction and priority setting for BLM Arizona. The strategies reflect current DOI and BLM strategic direction, knowledge of BLM Arizona workload, expected funding, and citizen expectations. The main goals include the following:

- Promote the sustainability of public lands by directing renewable energy onto lands with low resource conflicts;
- Be effective stewards of heritage resources by engaging government-to-government consultation with tribal governments and thoroughly considering cultural resources in environmental analysis; and
- Support community use of BLM-administered lands, especially through promotion of renewable energy.

ES.4 DECISIONS TO BE MADE BY THE RDEP

As discussed above, the RDEP process includes: (1) analyzing lands and realty program planning actions related to identifying REDAs and a SEZ, and (2) analyzing goals, management actions, and design features for renewable energy development ROWs.

Renewable energy developments proposed outside of a REDA or SEZ would be considered on a case-by-case basis using applicable national policy direction and guidance from existing land use plan decisions.

ES.4.1 Decisions on the REDA

The Arizona Strip Field Office RMP (BLM 2008d), Phoenix Resource Area RMP (BLM 1988; Lower Sonoran portion of planning area), Bradshaw-Harquahala RMP (BLM 2011l), Safford RMP (BLM 1991), Kingman Resource Area RMP (BLM 1995a), Yuma RMP (BLM 2010g), and Lake Havasu RMP (BLM 2007a) will be amended to:

- Identify REDAs for renewable energy development;
- Establish goals, objectives, and management actions for renewable energy development;

- Identify REDA land disposal criteria for future land disposal allocation decisions and disposal actions, including land exchanges and sales; and
- Identify terms and conditions, including design features and mitigation measures to minimize environmental impacts and that can be used to guide development at the local level (see **Appendix B**, Design Features and Best Management Practices).

Disturbed Lands and Nominated Parcels

A key component of the RDEP is emphasizing the reuse of previously disturbed or developed lands that, after remediation or site preparation, may be suitable for renewable energy development, thereby reducing impacts on sensitive resources. With this in mind, BLM Arizona and members of the public identified 64 previously utilized sites on BLM-administered, state, municipal, and private lands; site types include gravel pits, mine sites, retired agricultural lands, landfills, isolated parcels that have been disturbed, and abandoned unauthorized airstrips (see **Appendix C**, Solar and Wind Energy Assessment of Nominated Sites. The site boundaries generally follow ownership patterns or other geographic references. All lands in the boundaries may or may not have been disturbed depending on the use and how the site was nominated.

All nominated sites are identified as REDAs for analysis along with other lands with low resource sensitivity. To further plan for and support reuse of disturbed lands, the RMPs would also be amended to:

- Establish goals, objectives, and management actions for land reuse and sustainability practices; and
- Establish goals, objectives, and management actions for remediation of previously disturbed lands.

Nominated sites not on BLM-administered public lands will not be subject to these decisions, but these sites are considered part of the planning and analysis area to help BLM decision-making on adjacent suitable public lands. **Appendix C**, Solar and Wind Energy Assessment of Nominated Sites provides analysis of all nominated sites. This analysis will help inform state, tribal, and local governments and agencies and serve as a resource for the general public, policy makers, and energy planners that are considering renewable energy projects on these sites.

ES.4.2 Decisions on the SEZ

In addition to identifying REDAs, the RDEP is serving as a step-down process to the Solar PEIS for utility-scale solar development. As such, the BLM is also proposing to identify a SEZ to facilitate the development of utility-scale solar projects. As discussed in Chapter 2, the proposed SEZ is called Agua Caliente and is located in the BLM's Yuma Field Office planning

area of southwest Arizona. Based on the EIS analysis, the BLM may decide to carry forward the proposed Agua Caliente SEZ and would then amend the Yuma RMP to:

- Identify the Agua Caliente SEZ;
- Establish renewable energy goals, objectives, management actions, and design features for application in the SEZ;
- Identify SEZ-specific design features;
- Change the visual resource management (VRM) designations in the SEZ from VRM Class III to Class IV; and
- Remove the Special Recreation Management Area designation from within the Agua Caliente SEZ.

The BLM Arizona State Director has filed notice to segregate the proposed Agua Caliente SEZ study area (20,776 acres) from appropriation under the public land and mining laws for a period of two years. The purpose of the segregation is to protect this area from encumbrances, particularly mining claims, while the study area is evaluated in this EIS.

ES.4.3 Requirements for Further Environmental Analysis

This EIS will not eliminate the need for site-specific environmental review for future individual renewable energy development proposals; the BLM will make individual decisions on a case-by-case basis whether or not to authorize individual renewable energy development projects in conformance with the amended land use plan on the basis of this EIS. The BLM retains the discretion to deny solar and wind ROW applications based on site-specific issues and concerns, even in those areas available or open for application in the existing land use plan.

In cases where a broad policy, plan, program, or project will later be translated into site-specific projects, subsequent analyses are referred to as "tiered" analyses. Tiering refers to the coverage of general matters in a broader EIS, such as state-wide program or policy statements, with subsequent narrower EISs or environmental assessments (EAs), such as site-specific proposal documents, incorporating by reference the general discussions and concentrating solely on the issues specific to the subsequent EIS or EA (40 Code of Federal Regulation [CFR] 1508.28). Site-specific environmental reviews for renewable energy development projects that begin after the ROD for this EIS is finalized will be tiered to this EIS.

ES.5 SCOPE OF ANALYSIS

The RDEP has a programmatic focus. The EIS provides the BLM, the State of Arizona, county and local governments, tribal governments, utility companies, the renewable energy industry, and the public with a better

understanding of the environmental and economic issues associated with developing renewable energy in Arizona.

ES.5.1 Scope of the REDA Analysis

The scope of the EIS encompasses a wide range of renewable energy resources and technologies, including solar-based technologies and wind energy technology.[2] For a detailed discussion of what types of technologies are assumed, see **Appendix A**, Reasonably Foreseeable Development Scenario for Renewable Energy in Arizona.

Along with the BLM-administered lands with low resource sensitivity, the 64 nominated sites described earlier are included as part of the REDAs. As the BLM does not have jurisdiction to apply management decisions to non-BLM-administered lands, the RDEP land use and management decisions only apply to BLM-administered lands. While any decisions made related to renewable energy development within the REDAs would apply only to the BLM-administered nominated sites, non-BLM-administered sites were also included in the RDEP planning and analysis areas. This analysis will help inform state, tribal, and local governments and agencies and serve as a resource for the general public, policy makers, and energy planners that are considering renewable energy projects on these sites. Additional suitable disturbed lands may continue to be identified over time and may be considered in this or subsequent analyses.

ES.5.2 Scope of the SEZ Analysis

In addition to the programmatic analysis for the REDAs, the BLM conducted a statewide review and identified the proposed Agua Caliente SEZ as a candidate for analysis. The screening criteria focused on large blocks of BLM-administered lands that have limited sensitive resources, are located near existing solar energy developments, were previously disturbed, and are near existing road and transmission infrastructure. This EIS provides in-depth environmental analysis on the proposed Agua Caliente SEZ as a location suitable for utility-scale solar energy development.[3] The primary purpose of this more rigorous analysis is to provide documentation from which the BLM can tier future project authorizations, thereby limiting the required scope and effort of project-specific NEPA analyses. The BLM would complete a site-specific environmental review of all solar energy ROW applications in accordance with NEPA prior to issuing a ROW

[2] Geothermal resources are classified as a fluid mineral and are administered under separate laws and regulations from the lands and realty program and are not part of the RDEP project and environmental analysis. In December 2008, the BLM signed the ROD and RMP Amendments for geothermal leasing in the Western U.S. (BLM 2008b). This decision amended all of the land use plans in Arizona to provide the appropriate allocations, stipulations, and procedures to facilitate the leasing of geothermal resources in the state.

[3] For the purpose of the RDEP, "utility-scale" solar energy development is defined as projects capable of generating 20 MW or greater. Viable utility-scale solar technologies to be deployed over the next 20 years include parabolic trough, power tower, dish engine systems, and photovoltaics.

authorization. All future projects proposed in the Agua Caliente SEZ could tier to the analysis in this EIS. The extent of this tiering, however, would vary by project, as would the necessary level of NEPA documentation.

ES.6 ALTERNATIVES

This EIS evaluates six action alternatives and the No Action Alternative. Identifying lands as REDAs was an iterative process that provided a range of alternatives. Public scoping and collaboration with cooperating agencies and stakeholders revealed that renewable energy development would be best suited on lands that are disturbed and/or have low resource sensitivity. Lands with low resource sensitivity are areas that are unlikely to contain resources protected by statute or policy, that currently do not have special designations or uses, that are unlikely to contain other recognized values, or for which impacts from development cannot be mitigated (for example, groundwater is a sensitive resource in many parts of Arizona; however, the BLM has the authority to require non-consumptive technologies to mitigate the impact). The BLM collected relevant information from BLM datasets, cooperating agencies, stakeholders, universities, and other public sources. The complete listing of these resource datasets is in **Table ES-2**, Areas with Known Sensitive Resources (Eliminated from REDA Consideration). The data were loaded into a GIS and analyzed to geographically identify low-sensitivity lands that could be suitable for renewable energy development. These lands represent Alternative 1, Maximum REDA.

After defining the Maximum REDA, the BLM looked to the main planning issues to form the themes of the other action alternatives: transmission issues, water issues, disposal/land tenure issues, previously disturbed lands, and load centers. Four of the issue categories – transmission, water, land tenure, and load centers – formed the core of four action alternatives, with the idea for reusing previously disturbed lands being included as an option for all alternatives. Based on these themes, the BLM developed Alternatives 2 through 5 by overlaying issue-specific GIS layers (e.g., existing and proposed transmission corridors) on the Maximum REDA alternative.

Alternative 6, the Collaborative-Based Alternative, combines the analysis from the other alternatives to address the planning issues. **Figure ES-1**, REDA - Areas Eliminated from Consideration: Comparison of Baseline Data Used in Alternative Development, shows areas with high resource sensitivity that were eliminated from inclusion in the Maximum REDA, as well as how the other action alternatives were developed. This figure can be found at the end of the Executive Summary.

While decisions made from this EIS will only apply to BLM-administered public lands, the analysis was conducted statewide regardless of land status to facilitate statewide planning and identify areas for possible partnering

Table ES-2
Areas with Known Sensitive Resources (Eliminated from REDA Consideration)

Areas with Known Sensitive Resources	Source
BLM Areas of Critical Environmental Concern (ACECs)	BLM 2011b
BLM Backcountry Byways	BLM 2011b
BLM Designated Wilderness and Wilderness Study Areas	BLM 2011b
BLM Lands with wilderness characteristics managed to protect those characteristics	BLM 2011b
BLM Lands with wilderness characteristics not managed to protect those characteristics	BLM 2011b
BLM Visual Resource Management Classes I, II, and III	BLM 2011b
BLM Special Recreation Management Areas	BLM 2011b
BLM ROW exclusion or avoidance areas	BLM 2011b
BLM Herd Management Areas	BLM 2011b
Gila River Terraces (proposed cultural resources ACEC)	BLM 2011b
Designated BLM Utility Corridors	BLM 2011b
National Monuments	BLM 2011b
National Conservation Areas	BLM 2011b
Wild and Scenic Rivers (either eligible or suitable for inclusion in the National Wild and Scenic Rivers System or rivers included in the National Wild and Scenic Rivers System)	BLM 2011b
National Park System units, including Petrified Forest National Park Expansion Area	BLM 2011b, SWReGAP 2011
National Park System National Historic Trails (0.25-mile buffer)	BLM 2011b
Indian Lands	BLM 2011b
Military Lands	BLM 2011b
State Parks	Arizona State Parks 2010
State Wildlife Areas	BLM 2011b
U.S. Fish and Wildlife Service (USFWS) lands	BLM 2011b
The Nature Conservancy conservation easements, Audubon Society land, and private conservation easements	SWReGAP 2011
U.S. Forest Service (U.S. Forest Service) Designated Wilderness	Forest Service 2010a
U.S. Forest Service Established Research Natural Areas	Forest Service 2010b
U.S. Forest Service Inventoried Roadless Areas	Forest Service 2010c
U.S. Forest Service Heber Wild Horse and Burro area	Forest Service undated
U.S. Forest Service Special Interest Management Areas	Forest Service 2010b
Airports (0.25-mile buffer)	National Atlas 2010

Table ES-2 *(continued)*
Areas with Known Sensitive Resources (Eliminated from REDA Consideration)

Areas with Known Sensitive Resources	Source
Incorporated cities (except when BLM land is included within boundary of an incorporated city)	ALRIS 2011a
Arizona Game and Fish Department Areas of Conservation Potential, Tiers 4, 5, and 6	AZGFD 2011a
Arizona Game and Fish Department big game habitat, including bighorn sheep, black bear, elk, javelina, mountain lion, mule deer, turkey, white-tailed deer	AZGFD 1988
Special status species, including threatened, endangered, and BLM sensitive species locations	AZGFD 1988
Arizona Game and Fish Department wildlife corridors	AZGFD (undated)
USFWS critical habitat for threatened and endangered species	USFWS 2010
BLM sensitive species habitat	BLM 2011b
Desert tortoise (*Gopherus agassizii*) Sonoran population habitat categories I, II, and III	BLM 2011b
National Wetland Inventory wetlands	NWI 2010
Waterbodies (lakes, rivers, and dry lakes)	BLM 2011b
Federal Emergency Management Agency 100-year floodplains	FEMA 2010
Areas of high potential for known mineral deposits, metallic mineral districts, Holbrook Basin potash potential	AZGS 2008, Arizona Bureau of Geology and Mineral Technology 1983, Arizona Bureau of Mines 1993
Sensitive fossil resources	BLM 2011b
Severe soils: Clay Springs (runoff medium to rapid and erosion hazard moderate to severe) and Rositas (wind erosion severe if natural surface and cover disturbed)	BLM 2011b, Description of Soil Series 2010
Greater than 5-percent slopes (or greater than 15-percent slopes for areas with wind potential)	USGS 2010, BLM 2011b

between the BLM and other federal or state agencies and private land owners. Unless specifically nominated, the analysis does not include tribal or Department of Defense lands.

In addition to identifying REDAs, the RDEP is serving as a step-down process to the Solar PEIS. As such, the BLM is also proposing to identify the Agua Caliente SEZ to facilitate the development of utility-scale solar projects. The proposed SEZ was developed based on a screening process that included the following criteria: available large contiguous parcels of BLM land (greater than 2,500 acres); proximity to transmission; limited known

environmental or cultural constraints; proximity to roads and infrastructure; and adjacent to existing solar developments. All of the lands within and adjacent to the Maximum REDA were reviewed. The Agua Caliente area proved to best meet the criteria. After identification of the proposed SEZ, the BLM solicited the local BLM office (the Yuma Field Office), regional Arizona Game and Fish office, and stakeholder groups for resource information specific to that location. These groups provided information indicating that portions of the SEZ had excellent recreational hunting access and use, cultural resources, and proposed wildlife reintroduction locations. As a result of this input, two smaller SEZ footprints were proposed for consideration. Five of the action alternatives contain either the small, medium, or large proposed SEZ footprint as an element of the alternative; one action alternative does not propose a SEZ.

The final Agua Caliente SEZ boundary will be defined in the ROD for this EIS. Any development of the proposed Agua Caliente SEZ would be required to follow the requirements of the Solar Energy Program from the Solar PEIS and management actions, design features, and BMPs contained in this EIS. Additionally, the BLM would petition the Secretary of the Interior to withdraw the proposed Agua Caliente SEZ from settlement, sale, location, or entry under the general land laws, including the mining laws, to protect and preserve the area for future solar energy development.

ES.6.1 No Action Alternative

Under the No Action alternative, renewable energy projects would be developed through ROW authorizations and land disposal actions in accordance with the BLM's existing lands and realty policies, existing solar or wind development policies, and existing RMP decisions. Additionally, the BLM would not identify the Agua Caliente SEZ.[4]

ES.6.2 Alternative 1: Maximum REDA

The purpose of this alternative is to maximize opportunities for developing renewable energy while avoiding sensitive resources. It seeks to provide maximum flexibility for locating small- to large-scale projects without consideration of other physical constraints, such as distance to transmission or load. By eliminating known sensitive resources (see **Table ES-2**, Areas with Known Sensitive Resources (Eliminated from REDA Consideration)), this alternative illustrates the areas that have a higher likelihood of fewer resource obstacles to development. Alternative 1 analyzes the large SEZ footprint (20,600 acres).

Table ES-3, Summary of Acres for Alternatives, gives the number of REDA acres and SEZ acres for each alternative as distributed across all lands and

[4] Should the Solar PEIS result in a ROD, those decisions would likely result in changes to how utility-scale solar development is authorized on BLM-administered lands in Arizona.

public lands; **Figure ES-2,** Comparison of Conceptual Alternatives of REDA on BLM-Administered Lands and **Figure ES-3**, Comparison of Conceptual Alternatives of REDA on Non-BLM-Administered Lands, included at the end of this Executive Summary, provide an overview of the alternatives analyzed in the EIS.

Table ES-3
Summary of Acres for Alternatives

	BLM-Administered Land	Non-BLM-Administered Land	Proposed Agua Caliente SEZ
Alternative 1: Maximum REDA	321,500	2,367,900	20,600
Alternative 2: Transmission Line and Utility Corridor REDA	218,600	1,680,600	6,770
Alternative 3: Load Offset REDA	129,800	1,121,500	2,760
Alternative 4: Water Conservation and Protection REDA	321,500	2,367,900	20,600
Alternative 5: Land Tenure REDA	43,700	N/A	0
Alternative 6: Collaborative–Based REDA	237,100	1,795,300	6,770

ES.6.3 Alternative 2: Transmission Line and Utility Corridor REDA

This alternative responds to scoping comments that wanted the BLM to find renewable energy facility locations close enough to transmission to make it efficient and cost effective to bring the energy on-line and deliver it to the people who need it. This alternative seeks to reduce environmental impacts by focusing renewable energy development on lands within reasonable proximity to designated utility corridors and existing or certified transmission lines. For this alternative, the BLM started with the Maximum REDA lands (Alternative 1), and then narrowed them further to lands within five miles of an existing or planned transmission line, including: (1) BLM-designated utility corridors, including the West Wide Energy Corridors; (2) existing transmission lines 230 kilovolt (kV) or greater; and (3) reasonably foreseeable proposed transmission lines 230 kV or greater. Under Alternative 2, the footprint of the Agua Caliente SEZ would be reduced to 6,770 acres.

ES.6.4 Alternative 3: Load Offset REDA

The purpose of Alternative 3 is to reduce disturbance and environmental impacts by keeping energy generation near the point of demand, such as cities, towns, or industrial centers, and to help Arizona meet Arizona's Renewable Portfolio Standard commitments. Keeping energy generation near the point of demand offsets urban, rural, or industrial demand by

serving both large and smaller loads; reduces load required from the larger power grid, thereby allowing routing to other locations using existing transmission; provides opportunities for utility-scale and distributed energy; and promotes the development of renewable energy industrial parks near Palo Verde Nuclear Generating Station and the town of Gila Bend.

The BLM considered only those lands identified under Alternative 1 within a 10-mile area around all incorporated cities in Arizona (ALRIS 2011a), a 5-mile area around the Central Arizona Project ROW and known irrigation sources, a 20-mile area around the Palo Verde Nuclear Generating Station, and a 20-mile area around the town of Gila Bend. Under Alternative 3, the footprint of the proposed Agua Caliente SEZ would be reduced to 2,760 acres.

ES.6.5 Alternative 4: Water Conservation and Protection REDA

The Water Conservation and Protection REDA alternative is intended to respond to public concerns over water availability in Arizona, potential effects on other water users, and how renewable energy facilities will impact water resources. It focuses on avoiding impacts on sensitive surface watersheds, protecting and maintaining groundwater quality and quantity, and reducing consumptive use of water.

Alternative 4 was developed from the Maximum REDA (Alternative 1). While the Maximum REDA (Alternative 1) addresses some water issues, this alternative goes further by proposing water protection zones that provide additional design features to protect water resources in areas with known water supply issues (defined in **Table 2-6**, Water Protection Zones in Chapter 2). **Table ES-4**, Alternative 4: Acres within Water Protection Zones for REDAs and the Proposed Agua Caliente SEZ, shows the breakdown of the overall REDA acreage by water protection zone. As part of the required water resources mitigation and monitoring plan, applicants could include water conservation and replenishment techniques such as importing water, treating and using brackish water, capturing and using storm water runoff, water retirement, use of recycled or waste water, and vegetation treatments (such as tamarisk removal). The proposed Agua Caliente SEZ analysis area is the same as described in Alternative 1 (20,600 acres).

ES.6.6 Alternative 5: Land Tenure REDA

The Land Tenure REDA alternative meets the purpose and need for the RDEP in planning for environmentally sound renewable energy development on public lands in Arizona by focusing on lands which prior planning processes have concluded are suitable for disposal. These public lands are both within the Maximum REDA (the area identified in Alternative 1) and have been identified as suitable for disposal in existing land use plans. These lands were identified as suitable for general disposal for a number of

Table ES-4
Alternative 4: Acres within Water Protection Zones for REDAs and the Proposed Agua Caliente SEZ

	BLM-Administered Land (acres)	Non-BLM-Administered Land (acres)
Water Protection Zone 3	130,700	760,200
Water Protection Zone 2	47,900	386,500
Water Protection Zone 1	142,900	1,221,200
Total REDA	*321,500*	*2,367,900*
Proposed Agua Caliente SEZ (Water Protection Zone 2)	20,600	0
Total REDA and SEZ	*342,100*	*2,367,900*

reasons, including low resource values, previous disturbance, and isolation from larger blocks of public land, which has made managing them as public lands difficult. This would be an option for any RDEP alternative in addition to being. There is no SEZ proposed under this alternative.

ES.6.7 Alternative 6: Collaborative-Based REDA (Preferred Alternative)

While the previous five alternatives each address some of the aspects of renewable energy issues and concerns brought forth during scoping, Alternative 6: Collaborative-Based REDA incorporates all of the concepts, issues, and protections from the other five alternatives into a "blended" alternative. Once the other five alternatives were conceptually developed, the BLM made them available for review by stakeholders, the public, and cooperating agencies. Based on this outreach, the BLM refined the alternatives and developed the Collaborative-Based REDA that includes:

- Areas that are more likely to have fewer resource conflicts that may affect development;
- Areas close enough to transmission to make it efficient and cost effective to bring the energy on-line;
- Energy generation areas near the point of demand, such as cities, towns, or industrial centers; and
- Additional resource protection measures:
  - Water resource design features for each water protection zone; and

- Prioritize the disposal of these lands to renewable energy purposes, and adding criteria to favor disposal in a manner that creates additional social and environmental benefits (see Alternative 5).

This alternative combines the transmission areas and load centers data from Alternatives 2 (Transmission REDA) and 3 (Load Offset REDA). Locating areas close to transmission and load centers provides the context for where electricity demand is and where renewable energy projects may be developed in the future. Resource protection elements were added to these lands, specifically by including the water resource protections (design features) from Alternative 4 to address the water availability concerns, and prioritizing available disposal lands for renewable energy purposes that would favor disposal in a manner that creates additional social and environmental benefits (Alternative 5). **Table ES-5** shows the breakdown of the overall REDA acreage by water protection zone and by lands available for disposal.

Table ES-5
Alternative 6: Collaborative-Based REDA and Proposed Agua Caliente SEZ

	BLM-Administered Land (acres)	Non-BLM-Administered Land (acres)
Alternative 6: Collaborative Alternative	237,100	1,795,300
Proposed Agua Caliente SEZ (Water Protection Zone 2)	6,770	0
Acreage with Resource Protections		
Water Design Features		
Water Protection Zone 3	124,900	744,800
Water Protection Zone 2	19,800	342,000
Water Protection Zone 1	92,400	708,500
Off-site Conservation		
Lands available for disposal	43,700	N/A

The proposed Agua Caliente SEZ analysis area is the same as described in Alternative 2 (6,770 acres).

ES.6.8 Preferred Alternative

The BLM has identified Alternative 6: Collaborative-Based REDA as the agency's preferred alternative, because it best meets the following criteria:

- Satisfies statutory requirements (true for all alternatives).
- Reflects what the BLM believes to be the best combination of actions to achieve the stated goals.
- Represents the best solution for the purpose and need as described in Chapter 1.
- Provides the best approach to address the key resource and planning issues.
- Provides resource protection and a viable footprint for energy generation and distribution.
- Includes input from cooperating agencies, collaborating partners, stakeholders, the public, and BLM specialists.

The preferred alternative is the BLM's preliminary preference and does not represent a final BLM decision. The preferred alternative could change between publication of the Draft EIS and Final EIS based on public comments on the Draft EIS, new information, or changes in laws, regulations, or BLM policies. The BLM invites comment on the choice of preferred alternative.

ES.6.9 Alternatives Considered but Eliminated from Detailed Analysis

The range of alternatives developed for RDEP evolved from the issues ascertained through scoping, public outreach, and collaboration with cooperating agencies. The alternatives address a variety of topics, including reuse of disturbed lands, transmission, distributive and utility-scale energy development, and analysis of BLM and other lands. There are a couple of other alternatives that the BLM considered but eliminated from detailed analysis because they did not meet the stated purpose and need (**Section 1.2,** Purpose and Need for the RDEP). These alternatives are summarized below.

Restricting Development to Urban Areas: Suggestions were made to restrict solar and wind energy development to urban areas, such as rooftop solar. The BLM does not have authority to make decisions on non-BLM-administered lands or influence local policies. Likewise, as stated in the purpose and need statement, the BLM needs to identify lands most suitable for renewable energy development. Most BLM lands are located outside of urban areas. While this specific issue has not been incorporated into the EIS as an independent alternative, consideration was given to proximity of available lands to urban areas, load centers, and transmission lines to

promote distributive development. Some of the proposed REDAs are located close to urban areas.

Conservation Management: Comments were made to focus an alternative on instituting conservation measures and implementing demand-side management to reduce electrical demand. While this is a viable action to help meet America's energy needs, it does not respond to the purpose and need for agency action in this EIS. In general, conservation initiatives would be designed to reduce energy consumption levels in order to reduce the need for increased electricity generation capacity. Demand-side management would involve specific actions taken by utilities, their regulators, and other entities to induce, influence, or compel consumers to reduce their energy consumption, particularly during periods of peak demand. These efforts are beyond the scope of the BLM's land management responsibilities.

Other Alternatives Considered but Eliminated: Additional comments were brought up regarding very site-specific implementation-level issues. This EIS is a planning document to identify public lands most suitable for renewable energy development. Site-specific implementation-level analysis would be conducted on an application-by-application basis.

ES.7 SUMMARY OF THE REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

The RFDS identifies the lands in Arizona that are likely most suitable for the development of solar and wind energy resources, and estimates the acreage of those lands required to support renewable energy projects that would not only meet but exceed the Arizona RPS of 15 percent renewable energy by 2025. Arizona, given its abundance of solar energy resources, is expected to be a net exporter of renewable energy, and so it is assumed that by 2025 Arizona will generate renewable energy at a level that is twice the amount required by the RPS. In other words, the RFDS estimates that half of the renewable energy generated will stay in-state, while the other half will be exported to neighboring states such as California. The RFDS is neither a planning decision nor the "No Action Alternative" in the EIS; rather, it serves as a technical supporting analysis to be used as a reference. The full RFDS report is available in **Appendix A**, Reasonably Foreseeable Development Scenario for Renewable Energy in Arizona.

The purpose of the RFDS is to inform policy makers, BLM decision makers, the general public, and renewable energy developers. All of the groups have an important role in determining allowable uses on lands and in approving or denying a local project proposal. The RFDS allows them to make comments and decisions on an individual project by taking into account how it would fit into the big-picture, planning-level energy and environmental landscape.

BLM's responsibility for permitting renewable energy production sites is based on production occurring on BLM-administered lands; BLM has no authority to permit renewable energy development on non-BLM-administered lands. The RFDS focuses on ground-based, commercial-scale renewable energy projects; it is recognized that Arizona has potential for rooftop solar and cogeneration of renewable energy with conventional energy production facilities, but these could occur without BLM involvement and, therefore, are excluded from the analysis. However, the RFDS provides parallel analyses for BLM-administered lands and for non-BLM-administered lands throughout the state.

The majority of BLM-administered land that is developable for solar energy projects occurs in the western half of Arizona, with smaller areas identified to the east around Safford and smaller scattered parcels throughout the Tucson Field Office and in the northern portion of the Safford Field Office. Large tracts of land with no known technical or regulatory conflicts are identified along Interstates 8 and 10 to the west of Phoenix, and to the north, south, and west of Highway 389.

Relatively few areas of BLM-administered land are considered developable for wind energy projects across Arizona. These areas occur in several locations within the Arizona Strip Field Office in the northwestern corner of the state, west of Kingman near the California border, an area in the northern portion of the Tucson Field Office, and a scattering of areas in the northern portion of the Safford Field Office, south of Highway 40. No BLM-administered lands were found to contain the highest class of wind resources (Class 7), and only 69 acres were found to contain the second highest class of wind resources (Class 6).

Statistics from the RFDS are summarized in **Table ES-6**, Summary of RFDS Results, below.

ES.8 SUMMARY OF IMPACTS

The BLM assessed the likely direct, indirect, and cumulative impacts on the human and natural environment that could occur from implementing the alternatives summarized in **Section E.6**, Alternatives and described in detail in **Section 2.3**, Alternatives of this EIS. An analysis of the environmental impacts anticipated under each alternative is presented in Chapter 4 and summarized in **Table 2-13**, Summary of Environmental Consequences by Alternative; this analysis examined the potential impacts that would occur on BLM-administered lands in Arizona. In addition to the impact analysis contained in Chapter 4, the BLM evaluated the cumulative impacts of solar and wind renewable energy development on all lands in Arizona regardless of land ownership over the next 20 years when taken in conjunction with other past, present, and reasonably foreseeable future actions in the

Table ES-6
Summary of RFDS Results

Land required to produce 1 GW (solar)	8,000 acres
Land required to produce 1 GW (wind)	28,000 acres (10% of which would be disturbed)
Estimated renewable energy output by 2025	28,642 GWh
Estimated utility scale solar energy maximum production by 2025	9.48 GW
2025 wind energy capacity	0.82 GW
2025 land disturbance (solar, statewide)	76,000 acres
2025 land requirement (wind, statewide)	23,000 acres (10% of which would be disturbed)
2025 land disturbance (solar, BLM lands)	12,000 acres
2025 land requirement (wind, BLM lands)	3,600 acres (10% of which would be disturbed)

GW = gigawatt; GWh = gigawatt-hour
1 GW = 1,000 MW

planning area (see Chapter 5). The contribution of solar and wind development to cumulative impacts would vary by resource.

ES.9 PUBLIC INVOLVEMENT, CONSULTATION, AND COORDINATION

Public involvement, which includes public scoping, is required under NEPA, as defined in CEQ regulations 40 CFR 1500–1508, DOI NEPA regulations 43 CFR 46, and the BLM NEPA Handbook (BLM Handbook H-1790-1), and under FLPMA, as defined in 43 CFR 1610.2 and 1610.4-1 and the BLM Land Use Planning Handbook (BLM Handbook H-1601-1), which provide additional guidance and direction for public involvement.

ES.9.1 Cooperating Agencies

The RDEP engaged multiple cooperating agencies, stakeholders, and the general public for a broad understanding on the desired future renewable energy footprint on federal, tribal, state, and private lands in Arizona. Cooperating agencies are state or federal agencies, or local or tribal governments that enter into formal relationship with the BLM to help develop EISs. Each cooperating agency's level of involvement is at their own discretion and can include participating in issue identification, collecting inventory data, contributing to alternative formulation, and estimating effects of alternatives (BLM Land Use Planning Handbook, H-1601-1, pg. 8). The cooperating agencies on the RDEP include the following:

- Bureau of Reclamation;

- Western Area Power Administration;
- Arizona Game and Fish Department;
- Arizona State Land Department;
- Arizona Department of Environmental Quality;
- Arizona Corporation Commission;
- Central Arizona Water Conservation District; and
- Arizona Department of Water Resources.

ES.9.2 Cultural and Native American Consultations

The BLM initiated consultation with the Arizona State Historic Preservation Officer in April 2010 in accordance with the Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Arizona. Consultations will continue through the course of the EIS process to ensure compliance with the National Historic Preservation Act (NHPA) and NEPA. The BLM also initiated contact with the following 23 tribal governments early in the EIS process:

- Ak-Chin Indian Community
- Fort Yuma-Quechan Tribe
- Pascua Yaqui Tribe
- Colorado River Indian Tribes
- Cocopah Tribe
- Yavapai-Prescott Indian Tribe
- Hualapai Tribe
- Hopi Tribe
- White Mountain Apache Tribe
- Havasupai Tribe
- San Carlos Apache Tribe
- Tonto Apache Tribe
- Navajo Nation
- Yavapai-Apache Nation
- Chemehuevi Tribe
- Kaibab Paiute Tribe
- Fort Mojave Tribe
- Pueblo of Zuni
- Gila River Indian Community

- Salt River Pima-Maricopa Indian Community
- Tohono O'odham Nation
- Fort McDowell Yavapai Nation
- San Juan Southern Paiute Tribe

Formal letters were sent to all tribes in Arizona, and presentations have been made at tribal council meetings. BLM continues to remain in contact via in-person meetings, phone calls, and emails, and by responding to individual requests for additional information or meeting presentations.

ES.9.3 Public Involvement Process

The RDEP outreach started with scoping and publication of the Notice of Intent on January 13, 2010 (Federal Register, Vol. 75, No. 8, pg. 1807; both the Notice of Intent and Scoping Report are available on-line at the RDEP Web site: http://www.blm.gov/az/st/en/prog/energy/arra_solar.html). The BLM sought identification of site locations of previously disturbed or utilized lands in addition to identification of issues that might be associated with the RDEP. Local, state, and federal agencies, private companies, and members of the public nominated 42 potential sites. The BLM continued to receive nominations through the Web site, individual letters, and scoping meetings, during which local governments, businesses, and members of the public identified additional potential locations for consideration; to date, an additional 22 sites have been added for consideration (see the nominated sites identified in **Appendix C**, Solar and Wind Energy Assessment of Nominated Sites).

The BLM has provided information on the RDEP project and has sought additional information and data to support alternatives development and analysis from groups that have invited BLM to share information and address public forums regarding the RDEP. The BLM met with these stakeholder groups to identify any additional opportunities for or constraints on the project. The groups included Arizona state agencies, military installations, Arizona utilities, and environmental organizations. A full listing of the groups and agencies consulted are listed in **Chapter 6**, Consultation and Coordination.

The BLM has distributed the Draft EIS to individuals, agencies, and organizations on the RDEP mailing list and to all cooperating agencies for a 90-day public comment period. Following the public comment period, the BLM will review the comments and will revise the EIS if warranted.

As the project moves forward, there will be additional opportunities for public involvement and comment. Public involvement opportunities will be advertised through local news media, the Federal Register, email, the RDEP Web site, and newsletters posted to mailing list recipients. Also, key project

documents will be published on the Web site and made available in individual BLM Arizona Field Offices. Future key public involvement opportunities include the following:

- Publication of a Proposed RMP Amendments and Final EIS. In compliance with BLM planning regulations (43 CFR 1610), a 30-day public protest period will begin following publication. The Governor of Arizona will have 60 days to review the document for consistency with state and local plans and policies. Approval shall be withheld on any portion of the amendment being protested until final action has been completed on such protest. Before such approval is given, there shall be public notice and opportunity for public comment on any significant change made to a proposed plan decision.
- The BLM will accept public input throughout the process. Relevant materials and documents will be made available on the RDEP web site. Dates for the official public comment and protest periods, along with other relevant project dates, also will appear on the Web site.

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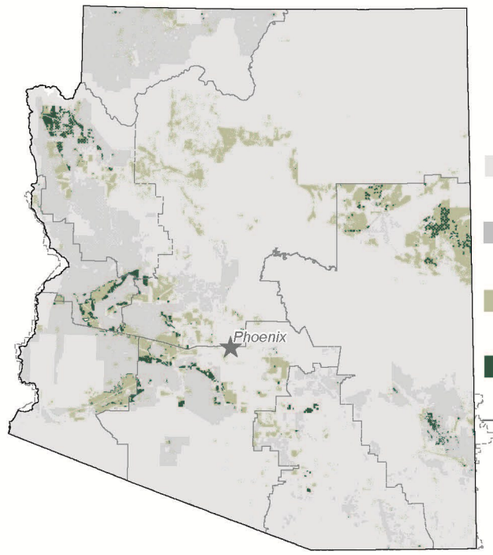
REDA - Areas Eliminated from Consideration: Comparison of Baseline Data Used in Alternative Development

Alternative 1: Maximum REDA

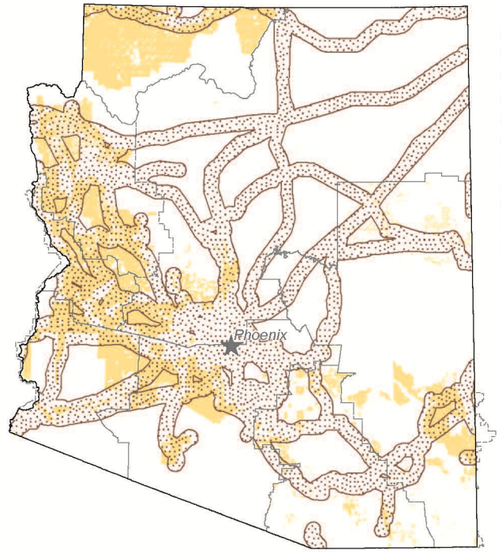


Areas of known resource sensitivity are eliminated from consideration.

- Non-BLM-administered lands with high resource sensitivity (areas eliminated from REDA)
- BLM-administered lands with high resource sensitivity (areas eliminated from REDA)
- Non-BLM-administered lands with low resource sensitivity (areas included in REDA)
- BLM-administered lands with low resource sensitivity (areas included in REDA)
- BLM field office boundary (common to all maps)

Please see Table 2-1 and references for full list of sources for sensitive resource areas.

Alternative 2: Transmission Line and Utility Corridor REDA

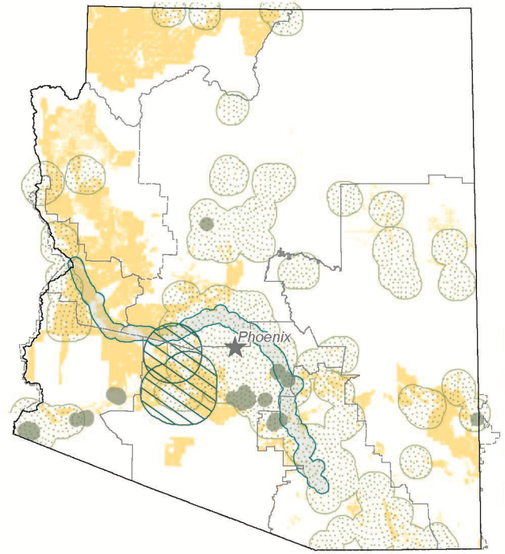


Alternative 2 is the same as Alternative 1, but eliminates REDA not within 5 miles of existing or certified transmission lines, either side of the outer boundary of designated Arizona BLM Utility Corridors, and designated BLM West Wide Energy Corridors.

- Area within 5 miles of transmission line or utility corridor
- BLM-administered lands (common to all maps)

Source: BLM 2011b, POWERmap, powermap.platts.com @2008 Platts, A Division of the McGraw-Hill Companies. Transmission line data are greater than 230 kV and verified with assistance from Arizona Public Service Company, Salt River Project, and Bing Maps.

Alternative 3: Load Offset REDA



Alternative 3 is the same as Alternative 1, but eliminates REDA outside of 10 miles of Arizona incorporated cities, 5 miles around US Bureau of Reclamation (BOR) Central Arizona Project right-of-way and irrigation pumping sites, and 20 miles around Palo Verde Nuclear Power Plant and the town of Gila Bend.

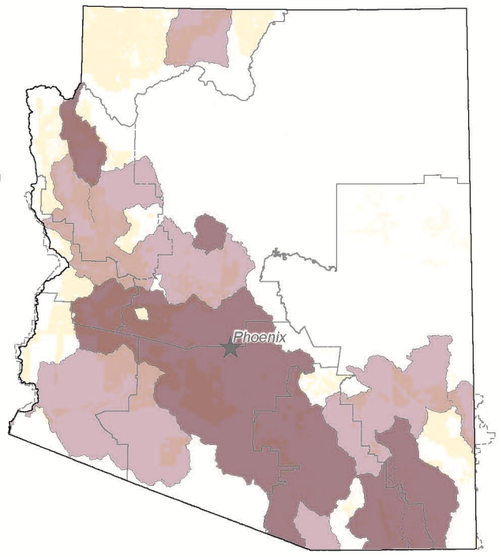
- Area within 10 miles of incorporated city
- Area within 5 miles of US BOR Central Arizona Project right-of-way
- Area within 5 miles of irrigation pumping site
- Area within 20 miles of Palo Verde Nuclear Power Plant or town of Gila Bend

Source: ALRIS 2011a, BLM 2011b, BOR 2011

Alternative 4: Water Conservation and Protection REDA

Alternative 4 is the same as Alternative 1, but categorizes REDA into Water Protection Zones 1, 2, or 3.

- Zone 3 — high protection
- Zone 2
- Zone 1 — low protection



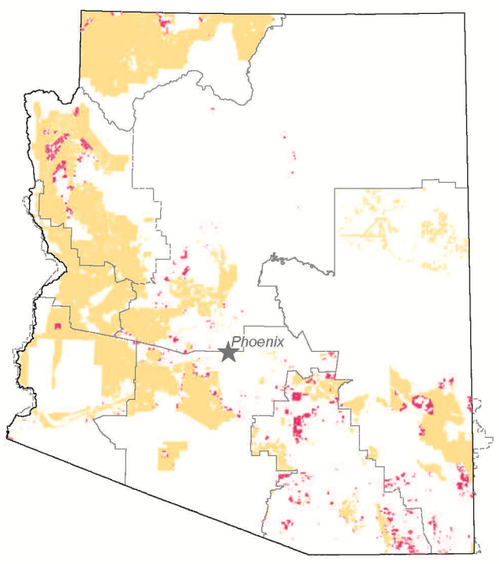
Source: BLM 2011b

Alternative 5: Land Tenure REDA

Alternative 5 is the same as Alternative 1, but only includes REDA that have lands identified for disposal under land use plans and emphasizes exchange of public lands with renewable energy potential for lands of high conservation potential.

Disposal lands are only on BLM-administered lands.

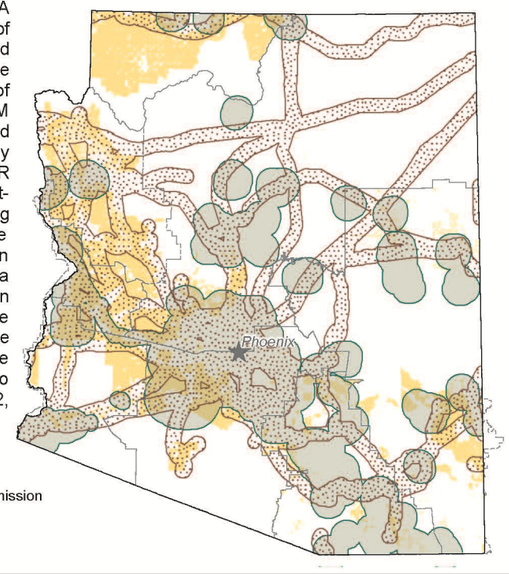
- BLM-administered lands available for disposal



Source: BLM 2011b

Alternative 6: Collaborative-Based REDA

Alternative 6 eliminates REDA that is not within 5 miles of existing or certified transmission lines, either side of the outer boundary of designated Arizona BLM Utility Corridors, designated BLM West Wide Energy Corridors, and US BOR Central Arizona Project right-of-way and irrigation pumping sites. Additionally, Alternative 6 eliminates REDA not within 10 miles of Arizona incorporated cities and within 20 miles of Palo Verde Nuclear Power Plant and the town of Gila Bend. Alternative 6 also categorizes REDA into Water Protection Zones 1, 2, or 3.



- Area within a load center
- Area within 5 miles of transmission line or utility corridor

Source: ALRIS 2011a, BLM 2011b, BOR 2011,

0 50 Miles

N

Figure ES-1

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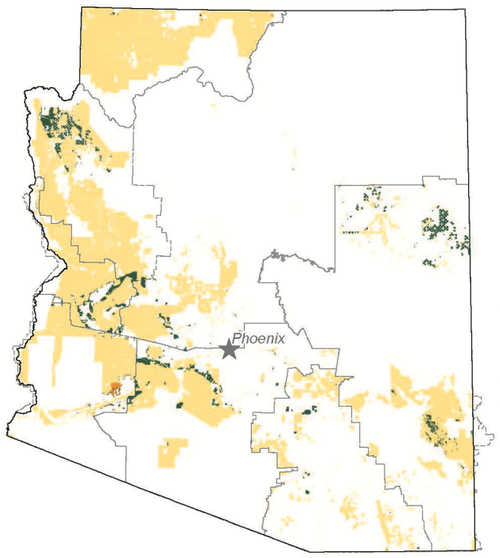
Comparison of Conceptual Alternatives of REDA on BLM-Administered Lands

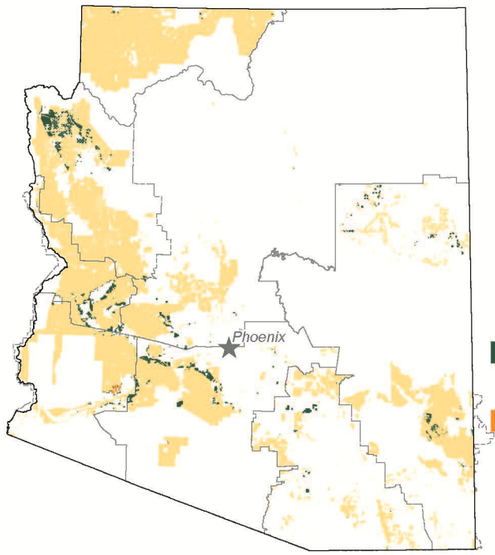
Alternative 1: Maximum REDA



Alternative 1 includes low resource sensitivity areas, RDEP nominated sites, and proposed Agua Caliente Solar Energy Zone (SEZ).

- REDA on BLM-administered lands= 321,500 acres
- Proposed Agua Caliente SEZ= 20,600 acres
- BLM-administered lands outside of REDA (common to all maps)
- BLM field office boundary (common to all maps)

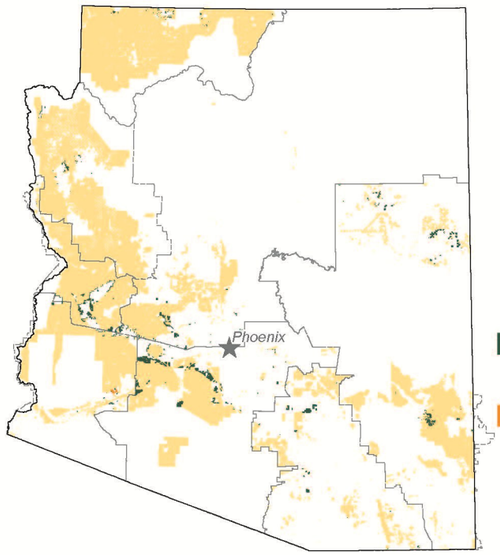
Alternative 2: Transmission Line and Utility Corridor REDA



Alternative 2 is the same as Alternative 1, but includes REDA within 5 miles of existing or certified transmission lines, either side of the outer boundary of designated Arizona BLM Utility Corridors, and designated BLM West Wide Energy Corridors.

- REDA on BLM-administered lands= 218,600 acres
- Proposed Agua Caliente SEZ= 6,770 acres

Alternative 3: Load Offset REDA

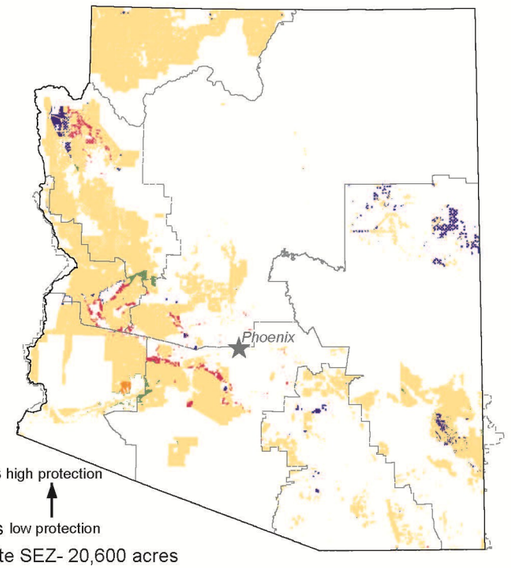


Alternative 3 is the same as Alternative 1, but includes REDA within 10 miles of incorporated cities in Arizona, 5 miles of US Bureau of Reclamation Central Arizona Project right-of-way and irrigation pumping sites, and 20 miles of Palo Verde Nuclear Power Plant and the town of Gila Bend.

- REDA on BLM-administered lands= 129,800 acres
- Proposed Agua Caliente SEZ= 2,760 acres

Alternative 4: Water Conservation and Protection REDA

Alternative 4 is the same as Alternative 1, but categorizes REDA into Water Protection Zones 1, 2, or 3. RDEP nominated sites are considered Zone 1.



REDA on BLM-administered lands= 321,500 acres

- Zone 3=130,700 acres
- Zone 2=47,900 acres
- Zone 1=142,900 acres

high protection ↑ low protection

- Proposed Agua Caliente SEZ- 20,600 acres

0 50 Miles

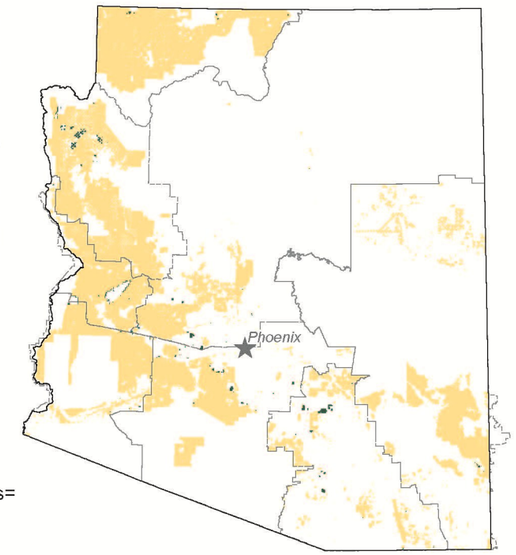
N

BLM administers 12.1 million acres of land in Arizona.

Alternative 5: Land Tenure REDA

Alternative 5 is the same as Alternative 1, but only includes REDA that have lands identified for disposal under land use plans. Alternative 5 emphasizes exchange of public lands with renewable energy potential for lands of high conservation potential and does not include the proposed Agua Caliente SEZ.

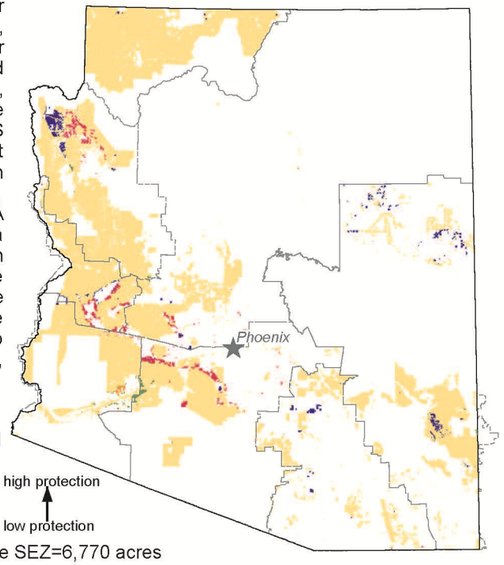
Disposal lands are only on BLM-administered lands.



- REDA on BLM-administered lands= 43,700 acres

Alternative 6: Collaborative-Based REDA

Alternative 6 includes REDA within 5 miles of existing or certified transmission lines, either side of the outer boundary of designated Arizona BLM Utility Corridors, designated BLM West Wide Energy Corridors, and US BOR Central Arizona Project right-of-way and irrigation pumping sites. Additionally, Alternative 6 includes REDA within 10 miles of Arizona incorporated cities and within 20 miles of Palo Verde Nuclear Power Plant and the town of Gila Bend. Alternative 6 also categorizes REDA into Water Protection Zones 1, 2, or 3.



REDA on BLM-administered lands= 237,100 acres

- Zone 3=124,900 acres
- Zone 2=19,800 acres
- Zone 1=92,400 acres

high protection ↑ low protection

- Proposed Agua Caliente SEZ=6,770 acres

Source BLM 2011a

Figure ES-2

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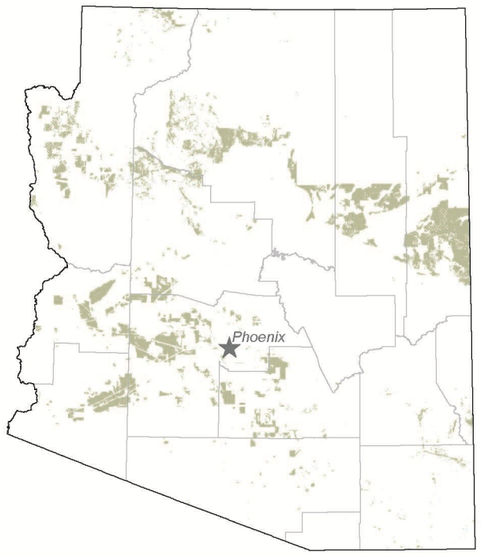
Comparison of Conceptual Alternatives of REDA on Non-BLM-Administered Lands

Alternative 1: Maximum REDA

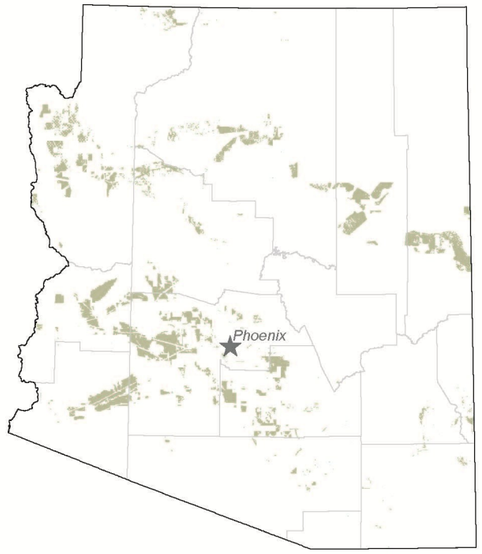


Alternative 1 includes low resource sensitivity areas and RDEP nominated sites.

REDA on non-BLM-administered lands= 2,367,900 acres

County boundary (common to all maps)

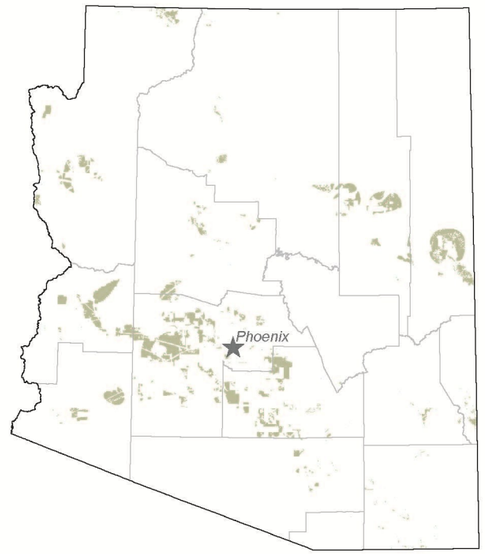
Alternative 2: Transmission Line and Utility Corridor REDA



Alternative 2 is the same as Alternative 1, but includes REDA within 5 miles of existing or certified transmission lines, either side of the outer boundary of designated Arizona BLM Utility Corridors, and designated BLM West Wide Energy Corridors.

REDA on non-BLM-administered lands= 1,680,600 acres

Alternative 3: Load Offset REDA

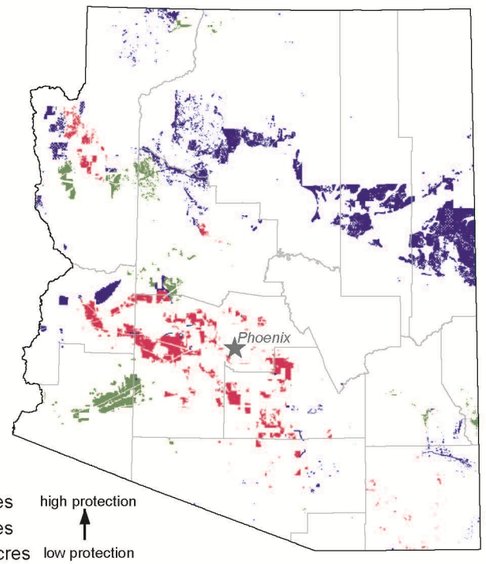


Alternative 3 is the same as Alternative 1, but includes REDA within 10 miles of Arizona incorporated cities, 5 miles of US Bureau of Reclamation Central Arizona Project right-of-way and irrigation pumping sites, and 20 miles of Palo Verde Nuclear Power Plant and the town of Gila Bend.

REDA on non-BLM-administered lands= 1,121,500 acres

Alternative 4: Water Conservation and Protection REDA

Alternative 4 is the same as Alternative 1, but categorizes REDA into Water Protection Zones 1, 2, or 3. RDEP nominated sites are considered Zone 1.



REDA on non-BLM-administered lands= 2,367,900 acres

Zone 3=760,200 acres

Zone 2=386,500 acres

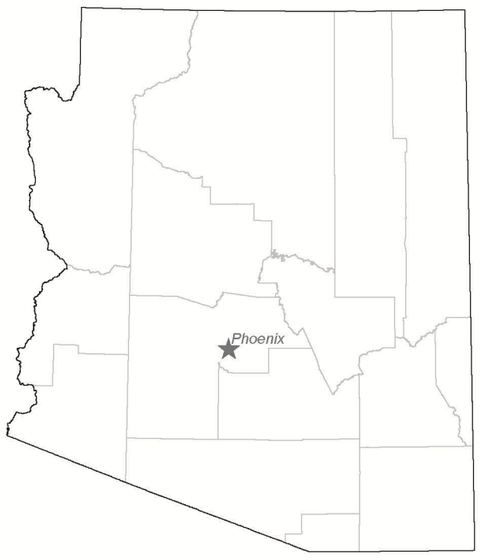
Zone 1=1,221,200 acres

high protection

low protection

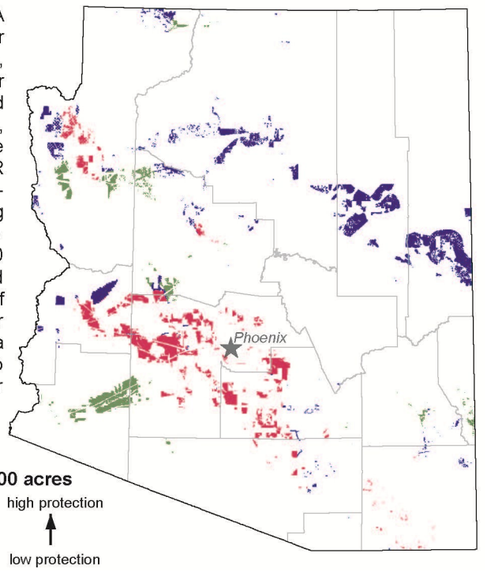
Alternative 5: Land Tenure REDA

Disposal lands are only on BLM-administered lands.



Alternative 6: Collaborative-Based REDA

Alternative 6 includes REDA within 5 miles of existing or certified transmission lines, either side of the outer boundary of designated Arizona BLM Utility Corridors, designated BLM West Wide Energy Corridors, and US BOR Central Arizona Project right-of-way and irrigation pumping sites. Additionally, Alternative 6 includes REDA within 10 miles of Arizona incorporated cities and within 20 miles of Palo Verde Nuclear Power Plant and the town of Gila Bend. Alternative 6 also categorizes REDA into Water Protection Zones 1, 2, or 3.



REDA on non-BLM-administered lands= 1,795,300 acres

Zone 3=744,800 acres

Zone 2=342,000 acres

Zone 1=708,800 acres

high protection

low protection

0 50 Miles

N

Arizona is 72.9 million acres.
No decisions will be made on non-BLM-administered lands.

Source BLM 2011a

Figure ES-3

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