

Thank you for your comment, John Shepard.

The comment tracking number that has been assigned to your comment is SolarM60186.

Comment Date: September 11, 2009 18:10:49PM
Solar Energy Development PEIS
Comment ID: SolarM60186

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Attachment: Final SESA PEIS Comments 9-14-09.doc

Comment Submitted:



Shaping the Future of the West
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GLENWOOD SPRINGS, COLORADO

September 14, 2009

Ms. Linda Resseguie
Project Manager
BLM Solar PEIS

Dear Ms. Resseguie:

Please accept and fully consider these comments on behalf of the Sonoran Institute, the Sierra Club, the Arizona Wilderness Coalition, and Tonopah Area Coalition related to the Solar Energy Study Areas in Arizona.

I. Intro

a. Description of commenting organizations

The Sonoran Institute is dedicated to inspiring and enabling community decisions and public policies that respect that land and people of the West. Our work extends from the Canadian Rockies, through the U.S. intermountain states, extending into northwestern Mexico, allowing us to apply our approach to conservation in diverse landscapes and communities. Our approach to conservation addresses the full range of Western land, water and energy issues, and seeks to demonstrate that conservation, energy sustainability, and smart growth are key elements of community well-being and economic prosperity.

The Sierra Club is a non-profit, public interest environmental organization with over 700,000 members, 12,000 of which reside in Arizona, whose mission is to explore, enjoy and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environment. Sierra Club has a strong interest in public lands in Arizona and has long advocated for protection and management that sustains the ecological integrity of the lands. Our members enjoy the public lands and utilize them for hiking, backpacking, hunting, and wildlife viewing, among other activities. We also have a strong interest in promoting clean renewable energy and energy efficiency.

The Arizona Wilderness Coalition works to permanently protect and restore Wilderness and other wild lands and waters in Arizona for the enjoyment of all citizens and to ensure that Arizona's native plants and animals have a lasting home in wild nature. We do this

by coordinating and conducting inventories, educating citizens about these lands, enlisting community support, and advocating for their lasting protection.

The Tonopah Area Coalition is a neighborhood association that has covered a range of issues within western Maricopa County for over two decades.

We appreciate the opportunity to submit these comments to the Bureau of Land Management (BLM) on the maps of proposed Solar Energy Study Areas (SESA), supplementing the Programmatic Environmental Impact Statement (PEIS) for agency-wide solar energy programs and policy. We are submitting these comments today via email and also forwarding a copy with attachments to you separately.

b. Support for renewable energy development and the role of public lands

It is clear that the nation's growing addiction to fossil fuels, coupled with the unprecedented threats brought about by global warming, imperil the integrity of our wildlands as never before. To sustain both our wildlands and our human communities, the Sonoran Institute, the Sierra Club, the Arizona Wilderness Coalition, and Tonopah Area Coalition believe our nation must transition away from fossil fuels as quickly as possible. To do this, we must moderate demand through energy efficiency, conservation, and demand-side management practices, and rapidly develop and deploy clean, renewable energy technologies, including at utility-scale solar power projects.

Our public lands harbor substantial wind, solar, and geothermal resources. Developing some of these resources will be important to creating a sustainable energy economy and combating climate change, and the Sonoran Institute, the Sierra Club, Arizona Wilderness Coalition, and Tonopah Area Coalition support such responsible development of renewable energy. However, renewable resource development is not appropriate everywhere on the public lands. Development that does occur on the public lands must take place in a responsible manner.

II. SESAs in Arizona

a. Description of comments

These comments are limited to the SESAs that have been proposed in Arizona. The groups submitting these comments sincerely hope that the topics discussed below and the questions raised will assist the BLM in carrying out the task before it in the best possible manner.

b. SESA selection process in AZ

The BLM has identified three SESAs in Arizona totaling 16,492 acres. These were selected as part of a GIS analysis "to locate places on BLM land that had the lowest known conflict with renewable energy development." This process excluded from consideration BLM lands that are legally, by presidential decree or secretarial designations, off limits to solar development. The BLM also excluded "high sensitivity"

areas that have resource or Land Use Plan conflicts that would be considered not in compliance with the agency's Resource Management Plans, or areas "where mitigation would prove particularly difficult, costly, impractical, or impossible." Finally, the BLM chose to exclude "moderate sensitivity" areas where "resource conditions or Land Use Plan decisions would not necessarily preclude the project, but mitigation would likely be required."

What remained where lands the BLM deemed areas of "low sensitivity." These areas were then subject to additional analysis. This included integrating data from Arizona Game and Fish Department (AZGFD) that was provided to the Arizona Renewable Resource Transmission Identification Study (ARRTIS) and the WGA's WREZ initiative. The GIS layer that resulted represented those lands that are low known conflict areas to the BLM and AZGFD.

From low known conflict areas, lands were selected as SESAs if they met the following criteria:

- High solar potential by the National Renewable Energy Lab (insolation values of 6.5 or more)
- Slopes of less than five percent,
- Parcels for 2,500 acres or larger,
- Near existing transmission and transportation corridors, and
- No existing applications.

Because the analysis was conducted at a very coarse level, the three areas selected as SESAs still must be subject to site-specific review and NEPA analysis.

c. Overarching concerns regarding SESAs in Arizona

i. Impacts on wildlife corridors and habitat

In identifying low known conflict areas that might be candidates for SESAs, the BLM relied on AZGFD data that ultimately precluded significant amount of BLM lands from consideration as SESAs. We note that this data was used as part of the WGA's WREZ initiative, and that during that process concerns were raised that AZGFD may have overstated the amount of wildlife habitat that would be significantly impacted by solar energy development. As a result, the AZGFD agreed to revisit its findings.

Recommendations: The BLM should request that, once it has revisited its findings, the AZGFD provide the agency and make publicly available the multiple wildlife data layers that are part of its analysis, so that all interested parties have the opportunity to assess and prioritize the various wildlife values that will be under consideration as part of the PEIS.

ii. Impacts on water resources, particularly groundwater

Currently, most proposed solar power facilities being proposed in Arizona involve wet-cooled technologies that require significant amounts of water. If located on BLM lands, these projects will likely depend on groundwater to meet their cooling needs, placing increased demands on an already scarce resource.

While we are supportive of policies that discourage water-intensive technologies, we want to underscore the need for a broader set of policies to guide water usage for energy development projects on public lands, so that a consistent policy is applied regarding water usage for all energy development on public lands.

The water usage of these large concentrated solar facilities that are utilizing wet cooling has already engendered much controversy in Arizona. Two plants in the Kingman area – Hualapai Valley Solar and Albiassa Solar – are meeting resistance from local residents primarily based on the significant amount of water they will use. Many opponents are asking that both facilities utilize dry cooling for the plants.

Dwindling water supplies and increased demand in the West are likely to heighten water-use conflicts. Public lands management policies should pro-actively address these conflicts by encouraging water uses that are sustainable while meeting a clear set of national policy priorities, including mitigating and adapting to climate change.

Any impacts relative to land subsidence, earth fissures, etc. relative to groundwater pumping should be thoroughly evaluated. Likewise, the BLM must consider any potential impacts from groundwater pumping to any nearby surface water, including small springs. Any water in these arid lands is critical for wildlife.

Recommendations: There is a pressing need for the BLM to develop policies that encourage the adoption of low- or no-water technologies for solar development on BLM lands. The PEIS should assess the economic feasibility and environmental impact of dry and hybrid cooling technologies and provide direction to developers on when dry and hybrid cooling should be considered

iii. Joint planning/venture opportunities with Arizona State Land Department

Given the fragmented nature of land ownership between the BLM and the Arizona State Land Department's trust lands, there are likely economies of scale and financial advantages to both agencies working together to identify and approve lands for solar siting. The three proposed SESAs in Arizona underscore this opportunity. Significant amounts of trust lands are either immediately adjacent to or in close proximity to the SESAs. Moreover, the SESA's relatively small size and the likelihood that site constraints might be identified may lessen their viability for utility-scale solar projects. Collaborative planning between both agencies could expand siting opportunities on their lands, as well as enhance the appeal of these lands to solar developers by allowing one or more projects co-locate and share infrastructure.

Recommendations: The BLM should effectively engage the Arizona State Land Department as a cooperating agency and, if the Land Department consents, consider extending the PEIS to include trust lands adjacent to SESAs as a precursor to collaborative planning.

iv. Coordination with Arizona's Fifth Biennial Transmission Assessment

In 2007, the Southwest Area Transmission planning group comprised of utilities, renewable energy developers, federal and state officials, and other stakeholders formed a Renewable Transmission Task Force (RTTF) to respond to the Arizona Corporation Commission's (ACC) requirement that utilities in Arizona assess the state's renewable energy potential and develop a plan to integrate renewable energy resources into Arizona's transmission system.

The RTTF, which is comprised of utilities and other interested parties has provided information on the location of renewable resources in Arizona, assessed available transmission capacity on existing lines, and developed a conceptual transmission network based on this information. To further assist Arizona utilities and stakeholders in identifying the top three potential renewable energy transmission corridors as part of the state's Fifth Biennial Transmission Assessment, the task force created a subcommittee (Arizona Renewable Resource and Transmission Identification Subcommittee) to more specifically identify areas with the best potential for solar, wind, geothermal, and biomass generation in Arizona. This subcommittee has just released its draft final report.

The subcommittee's report, along with the task force's analysis of potential transmission corridors, will inform the ACC's detailed examination of the existing and planned configuration of the state's electrical transmission system as part of its biennial assessment. This assessment will help chart the future location of expanded and new transmission corridors, which in turn will significantly influence where utility-scale renewable power projects will be located. It is imperative that the BLM effectively engage members of the ACC, so that they clearly understand the PEIS process, including its timeline and various options under consideration, and ensure that commissioners are kept fully apprised of the milestones and results of the process, so the ACC can plan their decisions based on complete and accurate information.

Recommendations: The BLM should become engaged in the ACC' biennial transmission planning effort to ensure that the siting of SESAs is consistent with the state's transmission planning priorities.

v. Mitigation strategies

Because the impacts of solar development are expected to be long lasting, mitigation strategies that offset these impacts are critical. We would encourage consideration of the following strategies that are particularly relevant to Arizona's Sonoran Desert environment: retirement of grazing leases, acquisition of private or state trust lands with

significant conservation values, new administrative or legislative protective designations for BLM lands that restrict off-road vehicle activities, mining, and other activities that degrade the lands, and acquisition and retirement of water rights. Any mitigation strategy addressing groundwater pumping should ensure that the acquisition and retirement of water rights occur in the same sub-basin (as defined by the Arizona Department of Water Resources) in which the project is located.

Recommendations: The PEIS should consider and offer a menu of mitigation strategies that the BLM can draw upon in evaluating and approving site-specific projects.

d. Sites-specific Issues

i. Gillespie SESA

The current configuration of this SESA (narrow width and scenic road bisecting the proposed area) would appear to present problems for siting a utility-scale project. We would request that the BLM consider possible adjustments to the area's boundaries away from Webb Mountain and closer to the transmission corridor, including moving the north-eastern boundary toward the natural gas pipeline and using scenic road as southern boundary.

We note that trust lands lie north of the proposed area. (If reconfigured as we suggest, these trust lands would be immediately adjacent to the area's boundaries.). We would encourage the BLM to include an alternative in the PEIS which analyzes the development of these lands as part of a joint planning effort between the BLM and the Arizona State Land Department.

The area falls within the Phoenix Active Management Area, so there are some restrictions on what water resources might be available for a utility-scale solar plant. We do note that the proposed area is located south-west of an area identified by Arizona Department of Water Resources as experiencing significant subsidence (primarily west of Arlington School Road). The PEIS should assess the impact that a utility-scale, wet-cooled solar plant's groundwater pumping will have on subsidence rates on nearby lands.

Recommendations: The PEIS should consider reconfiguring the Gillespie SESA's boundaries away from Webb Mountain and closer to the transmission corridor, consider expanding the PEIS to include state trust lands (with the Land Department's consent), and assess potential impacts of water use for utility-scale solar development .

ii. Brenda SESA

We suggest that the BLM consider possible boundary adjustments in order to preserve the wash and drainage areas in northwest corner, which may involve aligning the western boundary with Avenue 42 East and moving the southern boundary toward U.S. 60.

We note that state trust lands lie immediately north and east of the proposed area's current boundaries. We would encourage the BLM to include an alternative in the PEIS which analyzes the development of these lands as part of a joint planning effort between the BLM and the Arizona State Land Department.

We also note that the proposed area lies adjacent to a large BLM Solar Energy ROW application (#AZA 034750) that is now closed. This demonstrated interest by industry in developing solar projects on these adjacent lands, in addition to the likelihood that they may have similar characteristics to the Brenda SESA, warrant their consideration as potential SESA lands. We recommend that the BLM evaluate the lands covered under this application for inclusion in the Brenda SESA or as a separate SESA.

Recommendations: The PEIS should consider reconfiguring the Brenda SESA's boundaries to preserve wash and drainage areas, consider expanding the PEIS to include trust lands (with the Land Department's consent), and consider expanding or creating a separate SESA to include all or a portion of the lands included in the closed ROW application (#AZA 034750).

iii. Bullard Wash SESA

There is a significant Joshua Tree forest on the northern portion of the area. We would request consideration of a boundary adjustment in order to preserve this forest. Also, there appears to be some overlap between the area's northwest reach and a wildlife linkage corridor as identified by Arizona Game and Fish and the Arizona Department of Transportation.

We note that state trust lands lie immediately west, east, and south of the proposed area's current boundaries. We would encourage the BLM to include as an alternative in the PEIS development of these lands as part of a joint planning effort between the BLM and the Arizona State Land Department.

On July 1, 2009, during a site visit of the SESA, a Southwest Willow Flycatcher was observed flying over the area, but no nests were identified. The BLM should analyze any potential impacts to Southwest Willow Flycatcher habitat as part of the PEIS.

Recommendations: The PEIS should consider reconfiguring the Brenda Wash SESA's boundaries to preserve the Joshua Tree forest on its northern edge and consider expanding the PEIS to include state trust lands (with the Land Department's consent).

e. Consideration of additional SESAs

Because the BLM's stated goal of identifying and analyzing SESAs in the PEIS is to determine the most appropriate locations for solar development on public lands, it is critical that a robust set of SESAs be identified and development be guided to these lands. A description of the methodology used by Arizona BLM to identify the three Arizona SESAs (attached) indicates that there were five other SESAs identified through the

screening process. These SESAs were not included in the SESAs published for public comment because of overlap with existing solar ROW applications. Overlap with existing ROW applications was not included in the exclusion criteria directed by the BLM WO to the states, and any such overlap does not diminish an area's potential to be a successful SESA. In fact, SESAs included for public comment in several other states overlap with existing ROW applications. The BLM should analyze these additional five areas for potential inclusion as SESAs.

Recommendations: The BLM should analyze the additional five areas identified in the Arizona BLM screening process for potential inclusion as SESAs.

Below are narratives from site assessments we conducted for the three AZ SESAs. Each assessment includes a set of accompanying maps. Due to the maps' size, we were unable to include these with our comments, but these can be requested by contacting John Shepard at the Sonoran Institute (520-290-0828).

Sincerely,

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BRENDA SOLAR ENERGY STUDY AREA

Field Investigation
July 2009
Sonoran Institute

SUMMARY: Brenda Solar Energy Study Area of approximately 4,325 acres on BLM land.

LOCATION: The Solar Energy Study Area (SESA) is 115 miles west of Phoenix and is two miles east of Brenda, AZ, in La Paz County. Site is 15 miles east of Quartzsite and 30 miles west of Salome AZ. Highway US 60 is one mile south of the site. Ave 42E bisects the west side of the area, while Ave 47 and Bouse Wash are on the eastern side of the site. Brenda is three miles north of Interstate 10 but lacks an exit. Central Arizona Project (CAP) is five miles east of SESA. Bear Hills are one mile west and south. The Ranegras Plain follows Bouse Wash northwest to southeast. See T4N, R16W Sections 1-5, 8,9,10 & T5N R15W Section 31.

Brenda SESA is overlaid with Pending Solar Application AZA 035155. Site was surrounded on east, south, and west by BLM ROW Solar Energy Application AZA 034750, which is now closed. The SESA is bordered by BLM land, private land on southeast, and State Trust land on north.

TRANSMISSION CORRIDORS: South of the Brenda SESA is a proposed WWEC transmission corridor that runs parallel with Interstate 10. This corridor is 3 miles south of SESA. Paralleling US 60 is lower voltage transmission line in a corridor one mile south of Brenda SESA.

INSOLATION: The west half of the area is rated at 7,341 watt-hours / per sq. meter/ day of incoming solar radiation. The east half of the SESA is rated at 7,297 by National Renewable Energy Laboratory (NREL) modeling.

CLIMATE: In this region, of the Sonoran Desert, precipitation ranges from 3.7 - 13.4 inches per year. To the east, a 100-year precipitation average of 6.8 inches per year is recorded for Salome, AZ. (Brenda lacks weather station.) However, the Brenda SESA borders the Lower Colorado River Subdivision that records even lower amounts of annual rain. Cloud free days dominate. Summer temperatures can reach over 114 degrees. Drought for past decade has stressed this region.

SOILS: In this area an alluvial fan stretches from the nearby volcanic mountain range south and east to a plain that has a gradual slope towards Bouse Wash. This site contains a top level of small, darkened 'varnished' basalt rocks. This layer forms 'desert pavement.' This unique layer comes from the erosion of parent mountains and is bound together by fine grain soil. By providing a crust that stabilizes sand and dirt, this layer results in erosion and dust control, and is a rare scenic feature. Patches of desert pavement stretch diagonally across the Solar Study Area to Bouse Wash. In the lowest

elevation, like the Bouse Wash floodplain and Ranegras Plain, soft 'flour like' soil caps the alluvial basin. (Soil resource for this region is under study. No data is currently available from National Resource Conservation Service.)

SLOPE: The 4,325 acre SSA slopes < 3 percent gradually south west to north east across 5.5 miles of bajada and alluvial plain to Bouse Wash. One major wash (not named) on the west side and many arroyos (gullies) divide the site diagonally.

VEGETATION: Within the Lower Colorado River Valley Subdivision, this area also includes some flora of the neighboring Arizona Upland Subdivision of the Sonoran Desert. This region of bajadas and desert plains is characterized by creosote bush, triangle bursage, ironwood, and buckhorn cholla. Additions (from AZ Upland) include saguaros and ocotillo.

Cattle grazing allotments and terrain are key factors affecting the Sonoran desert vegetation within the SESA. The western points visited show a long history of grazing. Additional stress due to a decade of drought has resulted in sparse amounts of small bushes and grasses. Today, the west side corral and tank is maintained. These improvements are inside the Brenda Solar Energy Study Area. Similar effects of significant cattle grazing were found inside the northeast corner of the SESA and along a small mesquite bosque near Bouse Wash. Retirement of one or more cattle allotments may affect land outside of the SESA.

The creosote bush-dominated desert floor is divided by numerous small washes that are lined with Palo Verde, mesquite, and ironwood trees, plus compass barrel, buckhorn cholla, and saguaro cactus. In this area, these small, but numerous, washes are the arteries between the peninsulas of the 'desert pavement' in the topography of this part of the Sonoran Desert environment. Studies show that desert regions like this one can only support vegetation on less than 30% of the surface.

Broken surface allows invasive (non-native) plants to out compete native plants in areas that have been disturbed. Invasive plants (like Tamarisk) have already affected roads, development sites, and abandoned farm land in this region.

Significant amount of abandoned farmland exists near east side of Solar Energy Study Area.

WILDLIFE: Evidence of jackrabbits, gophers, lizards, coyote, doves, and turkey vultures were found during short hikes into the SESA. Arizona Game & Fish Department analysis of this area lists Species of Concern: Sonoran Desert Tortoise. BLM has given this area a "sensitive" designation for the Sonoran Desert Tortoise.*

HISTORIC: Plomosa Windmill, cattle tank, and corral on west side of Solar Study Area are over 50 years old. The Ranegras Plain follows Bouse Wash. Ranegras is described as a corruption of a Hualapai word (hanagas) which means "good". The possibility that

General Patton trained troops near the SESA relates to a historic structure and known activity north and south of SESA.

ECONOMIC: This site is remote. Few residents live in this region. Once based on mining, Brenda is now tied to tourism and winter snowbirds via three large, and several small, RV Parks, plus a restaurant and vehicle repair shop. Salome and Quartzsite are larger towns but are outside of this region. Abandoned farm land exists east of the Bouse Wash. A sewage sludge disposal plant northeast of area may represent the region's only industry. Further east a group of cattle feed lots exist along Vicksburg Road. Unincorporated Brenda is in the Salome Consolidated elementary and high school district.

REMAINING POINTS: The Brenda SESA shows considerable stress from cattle grazing and drought. In this region, a considerable amount of farmland is fallow. Questions exist regarding hook-up to 500kV Transmission Corridor along with competition with neighboring ROW application. Review of possible cultural resource, grazing allotment(s), land subsidence, and groundwater or CAP resource for SESA are still needed. Brenda SESA is Department of Defense Airspace Consultation Area.

*Arizona Game & Fish Department web site & on-line environmental review tool. Data from AZGFD Heritage Data Management System.
(Updated 0909.)

BULLARD WASH SOLAR ENERGY STUDY AREA

Field Investigation
July 2009
Sonoran Institute

SUMMARY: Bullard Wash Solar Energy Study Area covers 8,203 acres of BLM land.

LOCATION: Bullard Wash Solar Study Area (SESA) is approximately 20 miles northwest of Wickenburg, AZ, in Yavapai County. North access of the area is via Highway 93, a.k.a. Joshua Tree Parkway, and Alamo Road, which runs parallel with the north edge of SESA. Bullard Wash is near the southern boundary. Tres Alamos Wilderness is five miles north. Harcuvar Mountain Wilderness and Bullard Peak (3,124 elevation) are six miles southwest of SESA. See T9N, R9W Sections 1-5, 7, 9, 10, 22-25. Pending ROW Solar Application AZA 035156 overlays much of this SESA.

TRANSMISSION CORRIDORS: A transmission corridor that contains two 500kV lines is five miles east of SESA. (The corridor runs north south).

INSOLATION: The north 80% is rated at 7,500 and 7,498 watt-hours / per sq. meter / day of incoming solar radiation. The southern 20% is rated at 7,389 by National Renewal Energy Laboratory (NREL) modeling. This SESA has the highest insolation of the three study areas.

CLIMATE: In this region, of the Sonoran Desert, precipitation averages 11.2 inches per year (Wickenburg, AZ). This is nearly twice the rain fall that the other two SESA receive annually. Summer temperatures can reach over 109 degrees. Drought for over the past decade may have stressed this region. Estimated 200-240 frost-free days.

SOILS: The Basin and Range Province provides deep alluvial valleys with through-flowing drainage. In this area, fine to medium textured soils are well drained alluvium made of sands and rocks. South of the SESA, on the desert floor, fine 'flour like' soil caps the basin. Whitlock or Whitlock Anthony gravelly sandy loam and Mojave sandy loam dominate the SESA.

SLOPE: Bullard Wash is a 8,203 acre SESA that slopes gradually from northeast to southwest at < 3 percent. Many minor washes and arroyos divide the site northeast to southwest with small undulations.

VEGETATION: The elevation of the SESA is 2,851' vs. 1,117' of Phoenix. Area combines the flora of the Arizona Upland Subdivision of the Sonoran Desert with a mingling of plants, like Joshua tree, tied to the Mohave Desert.

The SESA is characterized by a transition zone that combines velvet mesquite, creosote bush, triangle bursage, ocotillo, hedgehog, fishhook barrel, compass barrel, buckhorn cholla, and saguaro cactus with, soap tree yuccas, tall grasses, and Joshua trees.

This unique combination of plants is reduced within the area as it slopes southwest to an elevation approximately 450 feet lower. The SESA north boundary is approximately ½ mile south of the unmaintained Alamo Road. This separates the SESA from the road and the highest quality vegetation but does not remove it completely from the transition zone. However, the southern (and lower) half of the SESA lacks the flora diversity seen in the north half. There, creosote dominates the plain.

While cattle grazing allotment(s) cover this entire SESA and are combined with neighboring State Trust allotment(s), the effects are spread over a large and relatively lush desert environment. The west tank (on private land in holding) shows decades of damaging cattle traffic. However, other stock tanks show less damaging impacts. Cattle grazing allotment(s) and terrain are key factors affecting Sonoran desert vegetation within the SESA. Retirement of one or more cattle allotments may affect more land than just the SESA.

WILDLIFE: Evidence of jackrabbits, lizards, coyote, ringtail cat, deer, doves, Swainson's hawk, southwestern willow flycatcher, and turkey vultures were seen during visits. Numerous examples demonstrate the quality of the environment and a wide variety of wildlife. This area is part of Arizona Game & Fish Department (AZGF) Hunting Unit 44A. Analysis by AZGF of this area lists Species of Concern: Sonoran Desert Tortoise, Banded Gila Monster, California Leaf-Nosed Bat, Cave Myotis (bat). Endangered: Desert Pupfish and Gila Topminnow*. BLM "Sensitive" designation for Sonoran Desert Tortoise, and Leaf-Nosed Bat.

HISTORIC: Corral in north half of SESA is over 50 years old. Small amounts of historic debris were found at the corral and two camp sites. No other historic resources were found except for three dammed wash-style water tanks. No analysis was made regarding cultural resources.

ECONOMIC: This site is remote. No residents live in this region. Mines exist; however, few if any are active. Ranching is active on many, maybe even most, of the allotments on BLM and State Trust land within this region. The SESA is within Congress (AZ) Elementary School District.

REMAINING POINTS: Ground water resource and cultural resource are unknown at this time. The remote location, rugged terrain, and large (8,203 acre) size make this a difficult SSA to appraise. During both visits training flights of two F-16's from Luke Air Force Base were seen over this SESA and neighboring Wilderness Areas. The Bullard Wash SESA is within the Department of Defense's Airspace Consultation Area.

* Species of Concern (SC) term defined under Endangered Species Act – Arizona Game & Fish Department web site & on-line environmental review tool. Data from AZGFD Heritage Data Management System.

GILLESPIE SOLAR ENERGE STUDY AREA

Field Investigation
July 2009
Sonoran Institute

SUMMARY: Proposed BLM Gillespie Solar Energy Study Area of approximately 3,790 acres.

LOCATION: The Solar Energy Study Site (SESA) is 50 miles west of Phoenix and southwest of Arlington (valley) AZ in Maricopa County. The east edge of the SESA is two miles west of the Gila River and Old US 80 Highway. After four miles Agua Caliente Scenic Road reaches the SESA. Site includes portions of sections in T2S, R6W & T2S, R7W.

Nearby Pending ROW Solar Energy Applications include: AZA 035157 (includes part of SESA) and AZA 035166 directly north of Gillespie SESA; AZA 034799 and AZA 034758 are northwest of the SESA (four and nine miles respectively); and closed application AZA 034806. Palo Verde Nuclear Generating Station and PV/Salt River Project transmission hub are nine miles north.

The Gillespie Solar Energy Study Area is two miles north of Webb Mountain and Woolsey Peak Wilderness, three miles northeast of Signal Mountain Wilderness, and four miles east of Arizona Game and Fish Department Gila River Wildlife area.

TRANSMISSION CORRIDORS: Two 500kV Transmission Corridors border the SESA. One touches the east corner. Another 500kV line runs parallel with the west end of the SESA and has been approved for expansion by 2012. This corridor includes Southern Pacific Rail Road track. El Paso Natural Gas lines run parallel with the SSA one mile north of the boundary. El Paso Natural Gas Gila Station (compressor site) is one mile from north east corner of the SESA.

INSOLATION: The west half of the area is rated at 7,431 watt-hours / per sq. meter / day of incoming solar energy. The east half of the area is rated at 7,364 by National Renewal Energy Laboratory (NREL) modeling.

CLIMATE: In this region of the Sonoran Desert, precipitation averages 7.5 inches per year to the north (Tonopah) and 6.1 inches to the south (Gila Bend). Cloud free days dominate. Summer temperatures can reach over 113 degrees. Drought for over that past decade has stressed this region. Region is rated at 260-320 frost-free days.

SOILS: The region hosts patches of cryptobiotic soil. Portions of this area expose a top level of small, darkened 'varnished' basalt rocks. This layer forms 'desert pavement'. This layer comes from the erosion of parent mountains and is bound together by fine grain soil. This rare feature provides a crust that stabilizes sand and dirt, plus it provides

a unique type of erosion and dust control. The area also includes well-drained soil dominated by extremely gravelly coarse sandy loam of Gunsight Cipriano complex.

SLOPE: In this basin and range region, the SESA is dominated by nearby volcanic mountain ranges south and west of the area. Webb Mountain drains north toward the SESA where a major wash bends around an escarpment and divides the east half from the west half. This ‘terrace’ makes up the largest part of SESA and allows a gradual slope north for two miles toward Centennial Wash.

The western part of the SESA has a gentle slope of < 3 percent with only arroyos (gullies) dividing the area. However the 3,790 acre SESA is divided by a significant wash and undulating terrain in the middle of the area. Parts of this middle band have slopes of 3-7 percent. While the narrow eastern extension of the SESA is again flat at < 3 percent slope.

VEGETATION: This area contains the flora common to the Arizona Upland Subdivision of the Sonoran Desert. This region’s bajada is characterized by plants like creosote bush and triangle bursage; trees like mesquite, ironwood, and Palo Verde, plus cactus like barrel, cholla, and saguaro. Due to cattle grazing allotment(s) and terrain, the vegetation variety and density varies within this area. A long history of grazing is shown by a lack of small plants like triangle bursage. A decade of drought may also contribute to sparse amounts of bushes and grasses. Retirement of cattle allotment(s) may affect more land than just the SESA.

The ‘flat top terrace’ of the escarpment (the western half of SESA) is dominated by creosote bush but also supports scattered buckhorn and pencil cholla plus saguaro cactus that line the arroyos.

Invasive (non-native) plants compete with native plants in areas that have been disturbed and can be a development issue. Roads, abandoned farm land, and developed property have been affected by invasive plants in this region. One plant is listed on Arizona Game & Fish Department (AZGFD) web site for this specific area is Straw-top cholla (native plant law ‘salvage restricted; collection only with permit’).*

WILDLIFE: Evidence of jackrabbits, gophers, lizards, coyote, deer, doves, road runner, red tail hawk, and turkey vultures were seen during short hikes into this area. AZGFD analysis of this area lists Species of Concern as Sonoran Desert Tortoise, California Leaf-Nosed Bat, Cave Myotis (bat). Listed as Endangered under ESA: Southwestern Willow Flycatcher, Yuma Clapper Rail. BLM “Sensitive” designation for Sonoran Desert Tortoise, California Leaf-Nosed Bat*.

HISTORIC: Agua Caliente Scenic Road (BLM defined) bisects half of the study area. It has experienced several alignments since the 1920’s. Near the road, a small debris site inside the SESA could be from 1930’s. Poison Well, over 50 years old, (historic), is near SESA southeast corner. Outside the SESA are a dozen small mines that dent the earth’s

surface near Webb Mountain. The Gillespie Dam trestle bridge and Enterprise Canal (1886) are historic features three miles east of SESA.

ECONOMIC: No residents live close to this remote site. Mining was short lived in this region. However, farming in nearby Arlington Valley along the Gila River has over a 100-year history. Ranching on tracts of private, BLM, and State Trust land continues. The Desert Rose restaurant & bar, a post office, the Hassayampa General Store, a small feed lot, and a grade school are all located nearby. Abandoned cotton gin site and abandoned farm land exist (private and State Trust land) in this region. Area is within Arlington Unified School District (elementary) and Buckeye Union High School District.

REMAINING POINTS: The Gillespie SESA shows stress from cattle grazing and drought. In this region significant farmland is fallow. Cultural resource, grazing allotment(s) and ground water resources need further evaluation. El Paso Pump Station near east SESA boundary has EPA posting regarding Chromate discharge from plant. Remediation and off-site ground water monitoring continues. Gillespie SESA is over-flight zone for Luke AFB and considered an Airspace Consultation Area by Department of Defense.

*Arizona Game & Fish Department web site & on-line environmental review tool. Data from AZGFD Heritage Data Management System.